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THE EFFECTS OF RECENT CHANGES IN MONETARY STANDARDS UPON THE DISTRIBUTION OF WEALTH

BY

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PART I:

THE EFFECTS OF RECENT CHANGES IN MONETARY STANDARDS UPON PRICES.

CHAPTER I.

PRICES AS AFFECTED BY PROGRESS IN THE PRODUCTION AND DISTRIBUTION OF COMMODITIES, 1850–73 AND 1873–95.

I. The non-monetary causes assigned for the fall of prices since 1873 are on their face very weighty. The improvement in the facilities for the production of commodities in this period has been fairly wonderful; production has outrun the increase in population of the civilized countries, and transportation rates have fallen in a marked degree. From such facts one easily reaches the conviction that he does not need to seek a monetary cause for the fall of prices. In his Recent Economic Changes, Mr. David A. Wells, after recounting at length the striking facts in the industrial advancement of the time, concludes:

"Such is a summary of the evidence in support of the view that the recent phenomenal decline in prices is due so largely to the great multiplication and cheapening of commodities through new conditions of production and distribution, that the influence of any or all other causes combined in contributing to such a result has been inconsiderable, if not wholly inappreciable."[1]

And Professor Laughlin, in his little book entitled Facts about Money, feels justified in the use of expressions like these:

"The cause of the fall in the price of wheat in late

[1] P. 205.

years is the increase in the world's production of wheat beyond the demand."[1]

"It is arrant demagogism to try to make cotton growers believe that the free coinage of silver can in any way restore the price of cotton, when the fall is due to excessive crops."[2]

But it must still occur to the student of the subject that an increase in the production of certain commodities over and above the increase of population consuming them will not necessarily result in a considerable fall in their respective prices. With the increase in wealth in civilized countries there is a marked tendency towards increased consumption of most commodities. As for the cheapening of the cost of transportation, this might often at least as well be an *effect* as a *cause* of falling prices. The desire to stimulate trade no doubt often results in reduced rates for transportation; and this tendency would be particularly strong in the dull times that ordinarily accompany falling prices.

On account of these considerations, it has seemed desirable to make a comparative study of the production of several commodities in relation to price changes, including so far as possible the facts for the period of rising, as compared with the period of falling prices. If the very great fall of prices in the past quarter of a century has been due to improvements resulting in increased production and cheapened cost of transportation,

[1] P. 165.
[2] P. 169.

the preceding period, which shows a marked rise of prices, should be characterized, other things equal, by a relative lack of such advancement.

It is scarcely necessary to say that the investigation, especially as regards the earlier period, has been difficult, owing to the scarcity of data; but I believe enough facts have been collected to show the general tendencies of the two periods, after making the necessary allowance for inaccuracies.

In regard to the method of comparison, it will be apparent that the figures showing the absolute increase in production could not be used unless account were taken of the increase in population. The increase in per capita production, or consumption, would be most satisfactory if available; and we have given such data in the cases of wool and iron, whose use is confined almost exclusively to civilized countries. For most commodities, however, any figures for per capita consumption would give an appearance of statistical accuracy which the facts would not warrant. It has seemed the best method in most cases to give the percentage of increase in total world production for the periods in question. By using this method we are enabled to disregard the increase in population, since the percentages of increase in population doubtless do not vary enough from time to time to affect our results.

II. GRAIN PRODUCTION.

Grain is so important a factor in all calculations upon price changes as to make a knowledge of the increase in

its production very desirable. We are unable, however, to offer any data prior to the figures of Neumann-Spallart for 1870–80 except those of Mulhall for 1851–60. With these are included in the table the index numbers of Sauerbeck for grain prices, the latter being grouped in such a way as to show the average price for significant periods rather than the particular periods of production here covered. The reason is that the years 1851–60 and 1870–80 are transition periods between high and low price levels; hence the averages of prices for these decades would not indicate the trend of prices.

WORLD'S GRAIN PRODUCTION AND LONDON PRICES.

(Production given in million bu.)

	Yearly av.	Increase.	Price Index No.[3]
1851–60	5840[1]	----------	(1848–52) 76
1870–80	7943[2]	(20 yr.) 36%	(1853–77) 100
1881–89	9086[2]	(10 yr.) 14%	(1881–89) 72

The estimates for grain production need to be taken with much allowance for discrepancies—a statement that is especially applicable to the earlier figures. So far as the statistics go they show no such increase in the later period, compared with that of the earlier, as to account in any degree for the changes in the average price of grain.

[1] Mulhall, Dictionary of Statistics, "Agriculture." The figures have been reduced to Winchester bushels.

[2] Übersichten der Weltwirtschaft, "Getreideproduktion."

[3] Sauerbeck's figures for average prices, used in this chapter, are taken from the *Journal of the Royal Statistical Society*, beginning with Vol. 49, under "Prices." The index numbers above are for "vegetable foods," including potatoes, and so far as the latter are a factor they are not well suited to the comparison.

III. WHEAT.

The following table on wheat production is made up from the same authorities with the addition of the figures of the United States Bureau of Statistics for the present decade:

WORLD'S WHEAT PRODUCTION AND LONDON PRICES.

(Production given in million bu.)

	Yearly av.	Increase.	Price in s. per qr. (English Gazette).
1851–60	1236.0[1]	----------	(1848–52) 43.0
1870–80	2002.6[2]	(20 yr.) 62%	(1853–77) 54.0
1881–89	2209.0[3]	----------	(1881–89) 36.0
1890–92	2291.8[3]	----------	(1890–92) 32.8
1893–97	2471.2[3]	(20 yr.) 23%	(1893–97) 25.6

While the period from 1850 to 1880 saw great expansion in the wheat growing area of the world, it is altogether improbable that the increase was so great as represented in the table. Our investigation, however, is limited to comparison of the available data, and we find here no evidence that the period of falling prices was one of greater expansion in wheat growing than the earlier period.

IV. SUGAR.

The following table gives the course of sugar production and prices since 1853–54:

[1] Dictionary of Statistics, "Agriculture." The figures are reduced to Winchester bushels.

[2] Übersichten der Weltwirtschaft, "Getreideproduktion."

[3] Monthly Summary of Commerce and Finance, March, 1898. Mulhall's figures for 1871–80 give an average annual production of 1851 million bushels, which would reduce the percentage of increase in the first period to 50.

WORLD'S SUGAR PRODUCTION AND LONDON PRICES.

(Average annual production in thousand tons.)[1]

	Beet.	Cane.	Total.	Increase.	Price Index No. (W. Indian and Java.)
1853–54 to 1854–55	193	1247	1440	----------	95
1855–56 to 1859–60	328	1290	1618	----------	116
1860–61 to 1864–65	446	1462	1908	(8.5 yr.) 33%	97
1865–66 to 1869–70	739	1500	2239	----------	97
1870–71 to 1874–75	1143	1721	2864	(10 yr.) 50%	102
1875–76 to 1879–80	1356	1790	3146	----------	93
1880–81 to 1884–85	2117	2150	4267	(10 yr.) 49%	76
1885–86 to 1889–90	2753	2296	5049	----------	56
1891–92 to 1894–95	3864	3095	6959	(10 yr.) 63%	54
1895–96 to 1898–99	4776	2902	7678	----------	42

This is a surprising record of increase in the production of a food commodity, and Mr. Wells cannot be censured for having attributed the fall "mainly" to overproduction. It is difficult to conceive how any other result was possible under these conditions. Yet this merely emphasizes the force of the factor at work before 1870 to sustain prices in the face of such an increase. Taking the period from 1860–61 to 1884–85, the first half of which has the same rate of increase as the second, it is seen that prices in the first half show a rise of 5 points and in the second a fall of 26 points.

V. WOOL.

Wool production naturally does not fluctuate so much from year to year as do vegetable crops; hence the fol-

[1] English tons, of 2240 lbs. The averages are made up from Willett & Gray's estimates covering each season from 1853–54 to date. I am indebted to Messrs. Willett & Gray for their kindness in furnishing these estimates at some trouble to themselves.

lowing table is not open to serious objection because of relating to one year only in ten, prior to 1880. As, however, the price of a commodity sometimes fluctuates from year to year independently of the longer price movements, it has seemed best to give the average price for three years instead of one, using the year preceding and the one following that for which production is given. The figures are for raw wool. I have included, also, the figures for per capita consumption, as estimated by the same authority, on the basis of the population of Europe and North America.

WORLD'S WOOL PRODUCTION AND LONDON PRICES.

(Production and importation into Europe and North America given in million lbs.)[1]

	Annual Av.	Increase.	Population in millions.	Per capita consumption.	Price index No.
1850	790	----------	267	2.96 lbs.	57
1860	955	----------	301	3.17 lbs.	98
1870	1295	(20 yr.) 64%	328	3.95 lbs.	95
1880	1633	----------	366	4.64 lbs.	68
1880–85	1743	----------	---	-------	54
1886–90	1933	----------	---	-------	54
1890	1944	(20 yr.) 50%	410	4.74 lbs.	--
1891–94	2192	----------	---	-------	49

From 1850 to 1870 the increase in production appears to have been greater than from 1870 to 1890. The falling off in the rate of increase in the later years was to have been expected owing to the gradual encroachment of agriculture upon grazing lands; but this change would lead us to expect also a higher price

[1] Helmuth Schwartze & Co., quoted in Wool Book, 1895, p. 64.

for wool in the later period than in the earlier, whereas there is a marked fall.

The table as made up probably excludes any effect on the price of wool that an increased demand due to the "cotton famine" of 1861–65 may have produced; hence the rise in the price cannot be ascribed in any appreciable measure to that cause. Whether the fall in later years may be due to the substitution of some other commodity ought also to be considered. The commodity most likely to be so substituted is cotton, and attention is next called to that commodity.

VI. COTTON.

For cotton we are fortunate in having trustworthy statistics for production, extending back for more than a century. Unfortunately for our present purpose cotton was subject to very exceptional conditions during the Civil War, so that no satisfactory comparison is possible for the whole of the period of rising prices. For the sake of completeness we give the figures for production for each five-year period since 1846, but attention is called particularly to the periods 1846–60 and 1871–95. The average prices are the Liverpool quotations for Middling Uplands:

WORLD'S COTTON PRODUCTION[1] AND LIVERPOOL PRICES.[2]

(Production given in million lbs.)

	Annual av.	Increase.	Price in pence.
1846–50	1105.2	----------	5.2
1851–55	1482.9	----------	5.5
1856–60	1934.8	(10 yr.) 75%	6.7
1861–65	1299.6	----------	19.1
1866–70	2011.3	----------	11.8
1871–75	2604.7	----------	9.0
1876–80	2967.2	----------	6.5
1881–85	3662.0	(10 yr.) 41%	5.9
1886–90	4091.2	----------	5.5
1891–95	4981.7	(10 yr.) 36%	6.5

It will be observed that there is an appreciable rise in the price before the war, notwithstanding an increase of 75 per cent. in production in ten years. The last twenty-five years, on the other hand, show a marked fall in price, though the percentage of increase in production was only about one-half as great. Professor Laughlin's assertion, that the fall in cotton prices has been due to excessive crops, can hardly have been founded on a comparative study of the statistics of production.

Returning to the question whether the substitution of one commodity for another may account for the fall in price where this is not accounted for by overproduction, it will be recognized that such substitution between wool and cotton is always a likely event. It is worth while, then, to note that the price movement of neither of these commodities can be accounted for in this way. The tables show that wool and cotton alike advanced in price before 1860, in the face of a rapid increase in pro-

[1] Ellison, Cotton Trade of Great Britain, 99; Hammond, Cotton Industry, 337. [2] Hammond, Cotton Industry, Appendix I.

duction; and both have shown a marked fall in price in late years in spite of a lower rate of increase in production.

VII. IRON.

In the following table are given the production of iron for 1860–94, the production per million of population for Europe and North America, and the percentage of increase for decades:

WORLD'S PRODUCTION OF PIG IRON[1] AND LONDON PRICES.

(Production given in thousand met. tons.)

	Annual av.	Per million population.	Increase.	Price Index No.
1860	7360	24.4	....	(1855–64) 85
1865–74	12062	36.8	51%	101
1875–84	17273	47.2	28%	75
1885–94	24297	59.2	25%	63

We have here an increase, measured by the production per million inhabitants in civilized countries, of some 50 per cent. for the decade of rising prices, as compared with 25 to 30 per cent. in the subsequent decades. Prices show the same periods of rise and fall, however, as in the case of other commodities.

VIII. COAL.

Coal is the only remaining one of the leading commodities for which trustworthy figures are available for the period of rising prices. These extend back only to 1864–65. To get a ten-year period of rising prices I

[1] The figures for 1860 are Spallart's (Übersichten der Weltwirtschaft, "Eisen"); those for subsequent years are Rothwell's (The Mineral Industry, I and subsequent volumes). Spallart's estimate for 1870 is 12095 tons; for 1880, 18385 tons; Juraschek's for 1890, 27332 tons.

have compared the average for these two years with that for 1874–75. Starting again with the average for 1871–75 the percentage of increase is given for ten-year periods:

WORLD'S COAL PRODUCTION[1] AND LONDON PRICES.

(Production given in thousand met. tons.)

	Annual av.	Increase.	Price index No.
1864-65	177,925	----------	91
1874-75	279,813	(10 yr.) 57%	112
1871-75	266,770	----------	114
1876-80	303,576	----------	84
1881-85	395,705	(10 yr.) 48%	77
1886-90	465,250	----------	77
1891-95	543,314	(10 yr.) 37%	80

Once more we have the fact of rising prices under a higher rate of increase in production than took place in later years, under falling prices.

IX. This concludes our study of the production of commodities as related to the rise and fall of prices. We have not consciously omitted any chief commodity the statistics for which seemed reliable and full enough to throw further light upon the question. While data are not available for nearly all the commodities commonly used in the construction of tables of index numbers, it may be fairly claimed that those included here are representative, since they show in general the same rise and fall as do the different index tables. It need hardly be added that these commodities are of such predominating importance to mankind as to furnish in themselves a fairly satisfactory test for the determination of price movements.

[1] Rothwell, The Mineral Industry, I and subsequent volumes.

So far as is known to the writer no previous attempt has been made by anyone to compare the two periods by use of the statistics of production; and he is conscious of the incompleteness of some of the material presented. But after allowing for inaccuracies, one feels justified in the conclusion that the statistics of production show the recent fall in prices to have been due, for the most part at least, to other causes than those affecting the production of commodities.

It may be of interest to add here the opinion of Mr. Augustus Sauerbeck, who in 1886 made a study of the production of commodities by means of the records of the foreign and domestic trade of Great Britain. His conclusion was that the increase in the total quantity of commodities "from 1849–60 and that from 1860 to 1873 was even larger than the world's increase during the last twelve years (1874–85)." [1]

X. IMPROVEMENT IN FACILITIES FOR DISTRIBUTION.

Scarcely less important than the increase in the production of commodities is the advancement in the facilities for their distribution. Hence, those who deny the importance of monetary causes in the late fall of prices have placed no little emphasis on the development of the means of transportation during the past three decades. That wonderful advancement has taken place during this time through railway and steamship building, through the completion of the Suez canal, and through the advantages afforded to commerce by the ex-

[1] *Journal of the Royal Statistical Society*, 49: 614.

tended use of the telegraph and ocean cable, does not need to be proved by a resort to statistics. Most persons, therefore, will be inclined at first to accept the view of Mr. David A. Wells, who, in discussing the decline in freight charges upon wheat between 1881 and 1886, concludes as follows:

"Here then is an agency which sufficiently accounts for a great part of the decline in the price of wheat, and which would have operated all the same even if the relative values of the precious metals existing in 1870–73 had remained unaltered."[1]

If it is true that the development of transportation facilities and the fall of freight rates have been the cause in large part of the fall in prices during the past twenty-five years, the preceding period of rising prices should reveal a lack of such advancement. It is desirable, therefore, to compare the facts for the two periods, so far as they are ascertainable.

XI. RAILWAY BUILDING.

Railroads have come to be so all important in land transportation that the course of their construction will furnish a fair indication of the progress in the facilities for distribution on land. Though railroads are unable as yet to compete in the matter of cost with carriers by water, where the latter means are equally available, they are not on that account a less important factor in the control of prices. For, as the prices of commodities depend upon the cost of furnishing the least accessible

[1] Recent Economic Changes, 169.

part of the needed supply, railways are necessarily a factor of prime importance.

The following table gives the progress of railway building for all countries from 1855 to 1895:

PROGRESS OF RAILWAY BUILDING.[1]

Year.	Kilometers in use.	Increase for period. Kilometers.	Per cent.
1855	66,277	---------- -----	---
1865	144,951	----------	---
1875	295,936	(20 yr.) 229,659	346
1885	487,923	----------	---
1895	698,356	(20 yr.) 402,420	136

Without discussing whether the absolute increase should count for more than the increase in percentage of mileage in use, in its effect on prices, we may go on to see what reductions in rates actually took place. The table below represents the course of freight charges for four of the important early roads connecting the eastern seaports and the section comprising the North Central States:

XII. RAILROAD FREIGHT RATES.[2]

(Av. rates per ton per mile, in cents.)

	Erie R. R.	Yearly decrease.	N. Y. C. R. R.	Yearly decrease.	L. S. & M. S. R. R.	Yearly decrease.	Penna. R. R.	Yearly decrease.
1854-57	2.545	--	3.117	---	3.105	---	2.621	---
1870-73	1.259	.8	1.460	1.04	1.226	1.17	1.260	.85
1894-97	.607	.27	.701	.32	.561	.28	.574	.28

[1] Übersichten der Weltwirtschaft, "Eisenbahnwesen"; and Archiv für Eisenbahnwesen, 20: 476.

[2] This table is made up from figures for average annual rates, in Bulletin 15, Miscellaneous Series, United States Department of Agriculture, p. 19. The earlier figures are based, apparently, upon McCain in the Aldrich Report on Wholesale Prices, I: 615. The years selected are the earliest for which data are given for all the roads.

It will be seen that in so far as freight rates in the United States have had a determining effect on the prices of wheat and other commodities in the world market, the prices of such commodities should have fallen more rapidly in the period prior to 1870–73 than in subsequent years. In other words, the prices of these commodities did *tend* to fall faster in the early period in so far as railroad rates could affect them. The explanation, then, of the rise of prices in the first period is, that the influence of falling rates was overcome by other factors.

XIII. The following table gives the cost of wheat transportation from Chicago to New York by rail, and by the Great Lakes, Erie canal and Hudson river route:

COST OF WHEAT TRANSPORTATION FROM CHICAGO TO NEW YORK.[1]

(Average rates in cents per bushel).

	Via rail.	Yearly decrease.	Via lakes, canal and river.	Yearly decrease.
1858–61	37.45	---	21.31	---
1870–73	28.24	.77	17.84	.29
1894–97	12.40	.66	4.57	.55

These figures, covering the earliest years for which comparable data are available, show not only that transportation rates for wheat have ruled lower by water transit than by rail, but also the average yearly fall in rates by the water route has been greater since 1870–73

[1]The averages for railroad freights are made up from the annual rates reported by the Chicago Board of Trade, quoted in bulletin 15, Miscellaneous Series, United States Department of Agriculture, p. 41. Those for the lakes and canal route, compiled from the reports of the New York Produce Exchange, are given on p. 57 of the same bulletin.

than in the preceding period. So far, then, as the canal route has been a factor, the tendency to produce a fall in the price of wheat (for example) has been greater in the later period. It may be added also that the completion of the Suez canal has furnished another factor tending to depress the prices of a large number of commodities in late years. But the price of wheat in London is determined, not by the cost of that part of the supply which is brought most cheaply, but by the cost of that part which is furnished at greatest expense; hence so long as a large part of the supply of wheat must bear railway freight rates, it is likely that the lowering of rates by water has had less influence upon the prices of such commodities as wheat than have the changes in railway freights.

XIV. OCEAN TRANSPORTATION.

No statistics of ocean freight rates are available prior to the year 1866, and consequently no comparison of the two periods has been made.[1] Some light may be thrown upon the question, however, by the facts relating to the expansion of the world's commercial marine; for a tendency towards a fall in rates would ordinarily be expected

[1] The statistics of ocean freights for subsequent years show great fluctuations. For example, the charge on wheat from New York to Liverpool in 1866 varied from 13 cents per bushel on February 17, to 4 cents on April 18; in 1867 it varied from 4 cents on September 4, to 22 cents on October 16; in 1870 from 4 cents on March 2, to 24 cents on August 3; in 1882 from $\frac{5}{8}$ cents on April 14, to 17 cents on December 8; in 1890, from 11 cents in January to $\frac{3}{8}$ cents in October. The first year in which the data collected were sufficiently complete for monthly averages was 1887. See United States Senate Report on Wholesale Prices, etc. I: 610–13.

after a period of great activity in ship-building. The following table shows the rate of development in the means of ocean transportation, 1820–1893:

EFFECTIVE INCREASE IN THE WORLD'S COMMERCIAL MARINE.[1]

	Average annual increase. Per cent.
1820–29	−0.25
1830–39	2.10
1840–49	3.65
1850–59	5.00
1860–69	2.74
1870–78	3.65
1879–93	3.36

One might reasonably expect the great development between 1840 and 1859 to exert a depressing influence on the prices of commodities in the market, both by cheapening the cost of transportation and by a more speedy transfer of goods to the point of demand. The result might be, indeed, to raise prices in producing sections; but throughout this part of our study we have used prices in the great world markets.

The fact, then, that there was a marked rise of prices during and immediately after this great increase in the ocean marine, gives additional evidence of the strength of the factor at work.

XV. To recall the facts briefly, in conclusion, the earlier period shows a more rapid fall in railroad freight rates on the important American lines than the later period, and also a decade of marked expansion in the world's commercial marine. Two facts of particular importance

[1] Übersichten der Weltwirtschaft, "Entwickelung der Handelsmarine."

in the later period are the opening of the Suez canal and the great cheapening of freight charges over the important American inland water route. I have not attached great importance to the former, for so long as North and South America supply the great bulk of breadstuffs and raw materials imported into western Europe, the effect of the Suez canal upon prices will be limited.[1]

The only conclusion to be drawn from these facts seems to be that the two periods do not show any such contrast as regards either the increase in commodities or in the facilities of transportation as to account in any measure for the rise of prices in the earlier period and the fall in the later. Unless some other very marked difference can be shown in favor of the latter, there is no

[1] In his Recent Economic Changes, Mr. Wells makes the following statement concerning the effect of the opening of the Suez canal upon the London price of wheat:

"The decline of freights, therefore, accounts for 6s. 6d. out of the 10s. 6d. per qr. difference between the price of Indian wheat in London in 1881 and 1886 respectively, leaving 4s. per qr. to be contributed by other sources."—p. 168.

We can judge better of the force of this contention after seeing the proportion of India's contribution to the world supply at that time, as compared with that of some of the other leading exporting countries. The following table gives exportations in thousand bushels:

Year.	India.	European Russia (excluding Poland).	United States (wheat and flour).
1881	12,400	49,320	186,320
1882	33,200	76,920	121,890
1883	23,650	84,360	147,810
1884	35,000	88,220	111,530
1885	26,420	93,220	132,570
1886	35,110	54,900	94,560

The figures are from the *Monthly Summary of Commerce and Finance*, March, 1898.

reasonable ground for attributing the recent fall of prices to conditions of production and distribution.

The fact that a rise in real wages has taken place during the years of falling prices is often spoken of as proving that gold has not appreciated. This would be valid on the assumption that wages are to be taken along with commodities in determining price changes. To do so is to give the word *price* a meaning not accepted in ordinary use. If the term prices is to include wages, it would necessarily include not only the wages of day laborers but the salaries of clerks and officials, as well as the fees of lawyers and doctors, since in each case the remuneration is to be regarded as the pay for services rendered. It is unnecessary to argue that this is not the accepted meaning of the term prices.

It is of course a perfectly proper question, and a very important one, whether the wage-worker is better off under rising as contrasted with falling prices—a question which we shall examine fully in a later chapter.

CHAPTER II.

XVI. PRICES AS AFFECTED BY CHANGES IN THE PRODUCTION AND MONETARY USE OF THE PRECIOUS METALS SINCE 1850.

The discoveries of gold in California and Australia resulted in an increase in the annual output of that metal from $13,000,000 in 1831–40 to $130,000,000 in 1851–60. This yield continued practically undiminished until 1870, increasing the estimated world's stock of gold by 80 per cent. in twenty years.

XVII. Had gold been the sole standard of value throughout the civilized world in 1850, the enormous increase of 900 per cent. in its annual yield must have worked a revolution in prices of commodities. The bimetallic standard was then, however, in use in the United States, France, Spain, Italy, Belgium and Switzerland, and owing to the relatively large production of silver during the early part of the century (amounting in 1831–40 to $25,000,000 annually), this metal had been largely used in bimetallic countries for coinage. Not only had silver been used to meet the need of an increasing supply of currency as the population increased, but much of the gold coined in earlier years had been melted down and used in the arts.[1]

[1] Except in the United States, where the adoption in 1834 of the 16 to 1 ratio had proved favorable to gold coinage. During the subsequent ten years, about equal amounts of gold and silver (approximating $25,000,000 each) were coined. Tooke, History of Prices, VI : 737. In France the metallic circulation in 1849, according to Tooke (VI : 80), was £100,000,000 of silver and £3,000,000 of gold.

As most of the other civilized countries were on the single silver standard (Great Britain alone using the gold standard), this almost universal use of silver instead of gold for money purposes had reduced the total demand for gold. Had gold been the sole standard of value in all the leading countries, there can be little doubt that prices would have reached a much lower level in 1850.

Then with the great increase in gold production after 1850, this metal in turn began to be offered in bimetallic countries for coinage, and by 1870 silver had largely passed out of their currencies, except for subsidiary coin.[1] In the following table, giving Dr. Soetbeer's estimates of the uses of the precious metals for the years 1831–80, it will be seen that the coinage of gold, which in 1831–40 was only 50 tons, had increased to the enormous volume of 1633 tons in the decade 1851–60. Silver coinage on the other hand had fallen off from 2700 tons in 1831–40 to a negligible quantity after 1850.

[1] As early as 1853 the disappearance of silver from the currency of the United States led to the passage of an act providing that the fractional silver pieces (half-dollars, quarters and dimes) should be coined at light weight; the purpose of the law being to make these coins unprofitable for melting down. The effort to accomplish this same end was one of the causes leading to the formation of the Latin Union in 1865.

France, however, still retained some silver in her currency, and in 1871, $50,000,000 of the indemnity to Germany was paid in this metal. Del Mar, Money and Civilization, 279.

CONSUMPTION OF THE NEW SUPPLIES OF THE PRECIOUS METALS, 1831–1880.

(In metric tons.)

	GOLD.			SILVER.		
Period.	Coinage.	Arts.	The East.	Coinage.	Arts.	The East.
1831–40	50	180	10	2700	2000	2200
1841–50	350	200	28	4800	2200	2400
1851–60	1633	280	100	----	2700	11,300
1861–70	1008	570	300	----	3100	12,300
1871–80	849	840	120	1200	4500	10,800

From the relatively moderate increase in the use of gold in the arts after 1850, we see how largely the great mass of new gold was turned into coin, thus serving a purpose that silver had formerly served. This absorption of gold in new uses would necessarily tend to sustain the value of that metal; that is to say, other goods measured in terms of gold would not change greatly in value. Accordingly we find that prices rose between 1850 and 1870 only some 30 per cent., although the world's volume of gold had increased in the meantime 80 per cent.

XVIII. After 1870 the production of silver began rapidly to increase, so that from 1875 to 1895 the annual product once more exceeded that of gold (measured by their coinage values). Consequently silver began to come into use again as money in bimetallic countries and to displace gold. During the seventies, however, a number of countries that had been using either the bimetallic or the pure silver standard began to adopt the single gold standard. To secure the necessary reserves these countries (the United States, Germany, Italy, Holland, and the Scandinavian states) began to buy gold in the market,

creating a special monetary demand for this metal estimated by Sir Robert Giffen at one billion dollars.[1] Subsequently Austria, Russia, and Japan followed the same course, the first two absorbing for purposes of reserves more than $400,000,000 between 1892 and 1897.[2] As most of these extraordinary demands came at a time when the production of gold was declining (*i. e.*, between 1870 and 1883) their tendency to cause a rise in the relative value of this metal is evident.

It should be noted also in this connection that England and France, which had large stocks of gold in their currencies in 1870, might have spared a considerable part of it by increasing their use of representative money, reserving at the same time sufficient gold for reserves. In this way the strain on gold, caused by its wide adoption as a standard of value, could have been somewhat lessened. But most governments have preferred, for whatever reasons, not to economize in the use of gold in this way[3]; so that Great Britain still retained in 1895 a money stock of gold equal to six-sevenths of her total effective money circulation. In France the proportion was about one-half, in Germany two-thirds. Mr. Giffen has pointed out that nations have shown no greater inclination to economize in the use of gold for money purposes when the production of the metal was declining

[1] Essays in Finance, 2d Series, 24, 25.

[2] See article by the Director of the United States Mint, *Forum*, XXVI : 660.

[3] This is doubtless to be explained by the desire on the part of European countries to keep a large stock of gold on hand as the best reliance in the case of war or other disturbance that might cause representative money to depreciate.

than when it was increasing. Consequently the nations that were already on the gold standard in 1870 have needed additional supplies of gold from time to time to make good the loss by wear, and to swell the volume of their currencies sufficiently to keep up the same per capita circulation.

Taking these several monetary factors—the regular demand for the standard metal for money purposes in countries already on the gold standard in 1870, the extraordinary demands in countries that have changed to the gold standard, the normally increasing demand for gold in the arts, together with the decline in gold production from 1870 to 1883—it will appear to most minds that such a fall in prices as has taken place was a necessary and inevitable result.

XIX. This conclusion is made still more obvious if we consider what would normally have occurred had there been no change of standards.

The essential fact about bimetallism is that when one of the metals composing the standard becomes more plentiful than the other, it will be taken to the mints for coinage, while the scarcer metal will partly or entirely disappear from circulation as money. This action is regarded by bimetallists as an advantage, by monometallists as a disadvantage. We are concerned here only with the historical fact that this action keeps the relative values of the two metals more uniform. In the following table are represented the relative production and values of the two metals for different periods. The second column shows the relative production, let us say in

ounces. The third column gives the number of ounces of silver required to buy an ounce of gold in the market:

RELATIVE PRODUCTION AND RELATIVE VALUES OF GOLD AND SILVER.

	Ratio of production. Gold. Silver.	Ratio of values, fluctuating between—
1492–1850	1 : 31.52	1 : 14.14 and 1 : 16.25
1850–1873	1 : 5.89	1 : 15.70 and 1 : 15.27
1873–1893	1 : 17.63	1 : 15.92 and 1 : 32.56

The table shows that while in the first period the number of ounces of silver mined was 31 times the number of ounces of gold, the value of an ounce of the latter was never more than 16.25 times that of the former. In the second period the number of ounces of silver produced was only 5.89 times that of gold, yet throughout this period an ounce of gold exchanged for practically the same amount of silver as in the first period. In the third period the number of ounces of silver produced was 17.63 times that of gold; and this being so near the coinage ratio we should have expected less fluctuation in the values than in earlier periods—other things remaining the same.

It was not, therefore, the difference in production that caused the great change in their relative values in late years, but the difference in the uses of these metals. Had bimetallism been retained as before 1870 the normal result would have been a very large use of silver and a comparatively small use of gold for money purposes, which action, as in former periods, would have tended to keep one metal from falling in value and the other from rising. Assuming no different course in the

production of the metals from what actually took place, it is apparent that prices of commodities would have been measured by a standard about midway between the present value of gold and that of silver. Had the production of silver been considerably greater, as would almost certainly have been the case, prices of commodities would have been nearer present prices as measured by silver than present prices measured by gold. Those who deny this should be able to show that under bimetallism silver as well as gold would have appreciated after 1870, which is the last proposition most monometallists would wish to sustain.

In other words, had there been no change of standards prices almost certainly could not have fallen lower than midway between present prices measured by silver and present prices measured by gold, while in all probability they would have been somewhat higher than this.

From each standpoint discussed in this chapter the conclusion seems quite justified that the change of monetary standards was the one predominating cause of the fall of prices, and if we add the facts ascertained in the preceding chapter, that there is nothing in the statistics of production of commodities or in their distribution to explain the fall in prices since 1873, as compared with the rise in the preceding period, we may safely accept this conclusion.

PART II.

THE EFFECTS OF PRICE CHANGES UPON THE DISTRIBUTION OF WEALTH.

CHAPTER III.

CURRENT VIEWS.

That a rise or fall in the general level of prices will affect the economic well being of many individuals is generally recognized. The most commonly cited example is that of a person dependent upon a fixed money income, such as a government employee or pensioner. For such a person a rise of prices means fewer comforts of life, or a smaller sum laid by for a rainy day; while a fall of prices will enable him to command more comforts or to lay by a larger sum, as he chooses.

Besides government employees and pensioners, all persons receiving incomes from interest or rent charges are more or less affected. There are also many professions, trades and kinds of business in which incomes, while not consisting of fixed payments, are largely dependent upon charges which through law or custom have become so nearly fixed as not to respond readily to price changes. Such are in some places the fees of physicians and court officers, the charges of transportation companies and theaters.

But if all money incomes should rise and fall in accordance with the rise and fall of prices, there would still remain occasions of loss and gain, as in the case of beneficiaries of insurance policies and trust funds. It will occur to many readers that a more important ex-

ample is that of money loaned at interest, which, when received back by the lender, will enable him to purchase an increased amount of goods or property if prices meantime have fallen, but a less amount if they have risen. The borrower, on the other hand, will, in most cases, be benefited by rising and injured by falling prices.

While there is general agreement on these points, there is much disagreement as regards the *extent* to which incomes from different sources do respond to price changes. Do wages belong to the class of incomes that are relatively fixed? Do rent and interest charges? Do the profits of undertakers of business enterprises? Are the incomes of all undertakers affected alike, or are those who borrow the capital for their business affected differently from those who do not need to borrow?

Professor Cairnes believed that rising prices tend to benefit the whole industrial class, *i. e.*, those engaged in present industry, as opposed to those receiving their incomes from accumulated wealth.[1] Jevons and Walker held that rising prices benefit the undertakers of business enterprises directly at the expense of all other classes, but that all classes will in turn benefit by the advancement in production to be gained by bringing the best business talent into the field under the inducement of high rewards.[2] On the other hand, many economists with Chevalier have seen little gain to any class through

[1] Essays in Political Economy (London, 1873), 152.

[2] Jevons, Investigations in Currency and Finance, 95; Walker, Money, Trade and Industry, 92.

rising prices, but great loss for wage earners and others who were regarded as receiving relatively fixed incomes.[1]

Perhaps the most common view is that the chief effect is upon debtors and creditors as such, the former being benefited by rising prices and the latter by falling prices. It may be pointed out here that this is by no means always the case. In general, debtors are only benefited by rising prices when they derive the payment money from the sale of commodities; if the payment money is derived from a fixed salary or from charges for transportation or certain other services, the effect may be the reverse. In the case of creditors, also, it must be remembered that most money lenders remain money lenders after a change of prices, and whether they are injured or benefited depends in part upon the extent to which interest rates accommodate themselves to the price change.

In the examination of the chief sources of income with reference to the effect of rising and falling prices upon the different industrial classes, it has seemed best to begin with interest charges, leaving profits to the last; since the conclusions regarding the former are perhaps least dependent upon the results obtained in the study of the other sources of income. On the other hand, the conclusions regarding profits will depend to a considerable extent upon the effects which price changes may be shown to have on interest, rent and wages.

[1] On the Probable Fall in the Value of Gold (Cobden's translation, 1855, London), 115–119.

CHAPTER IV.

XX. INTEREST AND RENT CHARGES.

The gains and losses resulting from price changes in the case of borrowed capital may be illustrated in the following example: Suppose a man loans $1,000 to be returned in one year with 5 per cent. interest. If during the year prices rise 10 per cent., the sum he receives as principal and interest, $1,050, will purchase only as much goods or property as $954.54 would have purchased at the time the loan was made. While receiving nominally 5 per cent. interest, the real result of the transaction, as tested by the power to purchase goods, is a loss, which, stated in the form of negative interest, is −4.5 per cent. If, on the other hand, there is a fall of 10 per cent. in prices during the year, the $1,050 received will have a purchasing power equal to that of $1,116.66 at the time the loan was made; so that while securing nominally 5 per cent. interest, the lender's actual gain, measured by purchasing power, is 16.6 per cent.

The objection to this statement of the case is that money lenders in general do not wish to turn their principal into goods or property, but to loan it again, and the gain or loss is not to be tested by the principal's purchasing power but by its power to yield a future income. If on account of rising prices the rate of interest also rises so that the interest received the following year will buy the same amount of comforts, it may be urged that

the lender has suffered but little loss—the loss consisting of a lower purchasing power in the interest received the first year. And if this held true for rising prices a similar adjustment might be expected to take place in the case of falling prices.

Will interest rates then so adjust themselves to price changes as to afford the money lender the same real income (*i. e.*, the same power to buy comforts) as before? And if this adjustment were to continue indefinitely could we then regard the change in purchasing power of the principal as unimportant?

In the first place it is to be observed that it is *rising* prices, not necessarily *high* prices, that hold out to the borrowing producer or trader the prospect of large profits (to be gained mainly by repaying their loans with less purchasing power than they borrowed); hence it is only rising prices, not a high level of prices, which enable him to pay a high rate of interest.[1]

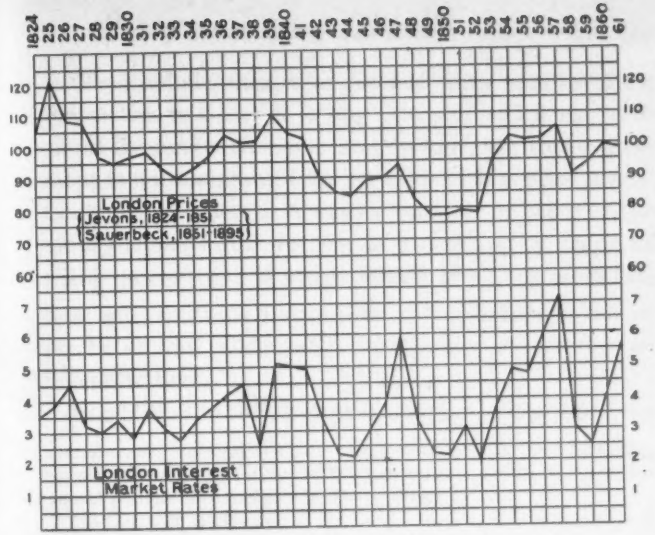
Of course there is not in actual business a conscious effort to adjust interest rates to price changes. The trader sees in falling prices merely a case of hard times. After meeting with loss from a fall in the price of goods in his hands he becomes cautious about investing heavily until the outlook improves. In such times the increasing supply of capital gets into circulation only by being offered at lower rates. But under rising prices the trader finds his profits larger than he expected, and sees

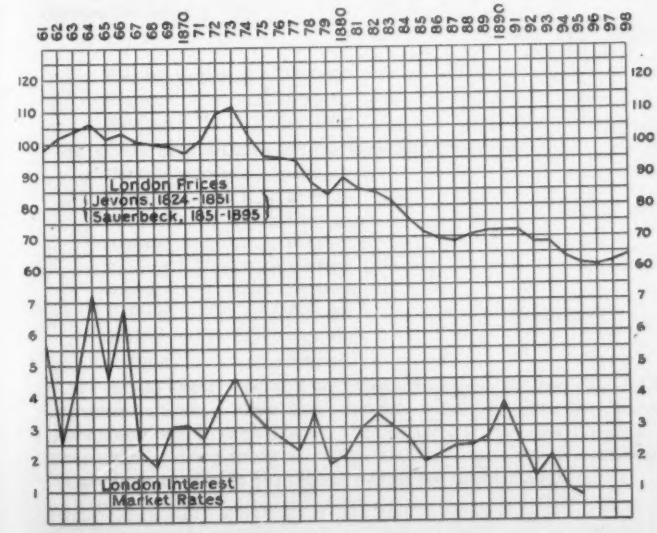
[1] The adjustment of wages, rent charges and other expenses of the undertaker to price changes is discussed in the following pages. On the basis of the results there reached, we assume here that such expenses are readily adjusted as a rule to price changes.

increased profits on every dollar invested; thus borrowing is greatly encouraged, and rates rise through competition.

If, however, foresight were perfect we should expect interest rates to fall as soon as the rise of prices had received a check, whether prices fell or simply remained stationary. Likewise a rise of interest rates would occur when a fall of prices had been checked, though prices did not rise. By noticing on the chart the great changes in interest rates, such tendencies are observable; an important fall of rates has not always been connected with an important fall in prices, but takes place frequently on the mere discontinuance of a rise. Note for example the years 1837, '51, '61, '64 to '68, and '90. The opposite tendency is not so noticeable in the cases of falling prices, but it may be observed after the years 1844, '50, '65, '79, '87 and '92.[1]

[1] Exception must be taken therefore to Professor Irving Fisher's statement (Appreciation and Interest, 75) that "high and low prices are directly correlated with high and low rates of interest." In support of this statement, Professor Fisher shows (p. 55) that between 1824 and 1891 the years of relatively high prices within each decade corresponded in the great majority of cases with the years of relatively high interest rates within the decade. But here Professor Fisher is appealing to a fact connected with temporary fluctuations to prove a statement relating to periodic changes. That is to say, the terms "high" and "low" prices when used to denote the results of changes in the world supply of standard metal (which is the subject Professor Fisher is discussing) must refer to high and low *price levels*, covering a considerable period of years. When we come to examine the facts for the long periods of high or low prices we find that the average rates of interests are not correspondingly high or low. It will be seen by reference again to the chart that the decade of highest prices, 1865–74, shows a moderately low average rate of interest. Or, to make an arbitrary selection, the twenty years, 1845–64, has an


1824 25 26 27 28 29 1830 31 32 33 34 35 36 37 38 39 1840 41 42 43 44 45 46 47 48 49 1850 51 52 53 54 55 56 57 58 59 1860 61
120 110 100 90 80 70 60 7 6 5 4 3 2 1
London Prices
Jevons, 1824-1851
Sauerbeck, 1851-1895
London Interest
Market Rates


61 62 63 64 65 66 67 68 69 1870 71 72 73 74 75 76 77 78 79 1880 81 82 83 84 85 86 87 88 89 1890 91 92 93 94 95 96 97 98
120 110 100 90 80 70 60 7 6 5 4 3 2 1
London Prices
Jevons, 1824-1851
Sauerbeck, 1851-1895
London Interest
Market Rates

We conclude, then, that interest rates tend to adjust themselves to rising or falling prices in such a way as to afford the lender the same real income, but this adjustment is not maintained during high or low price levels. Consequently there is always a prospect of a fall in the money lender's real income as a result of a check in rising prices; and if prices remain at a high level this loss will continue indefinitely. A permanent fall of prices, on the other hand, secures him a gain for an indefinite time.

In addition to this, if prices remain at a high level the

average rate of interest of 4.5, as compared with 3.6 for the preceding twenty years and 3.1 for the succeeding twenty, though both the last named periods have a higher level of prices.

The fact that stands out in the chart is the connection between *rising* and *falling* prices and high and low rates, as the following figures also show:

		Average London market rates.
Falling prices	1826–52	3.7
Rising "	1853–73	4.2
Falling "	1874–95	2.4

It may be of interest to add the facts for shorter periods:

Falling prices	1826–35	3.4
Rising "	1836–39	4.7
Falling "	1840–44	3.5
Rising "	1845–47	4.2
Falling "	1848–52	2.5
Rising "	1853–64	4.6
Falling "	1865–70	3.6
Rising "	1871–73	3.7
Falling "	1874–95	2.4

We should expect that ordinarily the effect upon interest rates will continue for a short time after the rise or fall in prices has taken place; and this is doubtless the explanation of the correlation between high and low prices and high and low rates, which Professor Fisher finds to exist in the case of temporary fluctuations.

money lender's power to purchase goods or property with his principal will remain for an indefinite time lower than if prices had not risen. The possibility of wishing to turn the principal into property of any kind at a future time will naturally make the capitalist less willing to loan under rising prices, even though he were sure of the same real income from interest in the meantime. He will prefer to invest in property bringing an equal money income from rent charges, for in that case he can command a larger share of the tangible wealth of the world should prices remain high.

There are then two distinct reasons, based on foresight as to future possibilities, which make the money lender unwilling to continue lending under rising prices at a rate that will give him for the time being the same real income as before. The true test, of the effects of price changes upon the economic well being of the money lender, must be, from his standpoint, something that takes account of the change in the purchasing power of the principal.

To some these facts may seem commonplace; but the matter of income is regarded by many as the thing of prime importance, and it is advisable to make clear that from the standpoint of the lender account must be taken of the purchasing power of principal and interest together.

This is done by comparing the purchasing power of the principal at the beginning of a period of price change with the purchasing power of principal and interest at a later date. The gain or loss is called

"virtual" or "real" interest, and in the case of loss it may be stated in the form of negative interest.

XXI. Computations of this character have been made by Professor Irving Fisher for a number of countries, and may be found in his able monograph on Appreciation and Interest.[1] A summary of the computations for the longest period covered, based on London market rates, 1826–1895, is given below. The first two columns give the average London market and bank rates for the period corresponding to the chief price movements; the third indicates the percentage of rise or fall in the value of money in terms of commodities, and the fourth gives the real interest realized on loans at market rates, as corrected by the use of the third column:

NOMINAL AND REAL INTEREST IN RELATION TO RISING AND FALLING PRICES.[2]

Period.	Bank rates.	Market rates.	Appreciation of money in commodities.	Real interest in commodities.
1826–29	4.4	3.5	+4.2	7.8
1830–35	4.0	3.2	0.0	3.2
1836–39	4.7	4.2	−2.3	1.8
1840–44	4.2	3.5	+5.9	9.6
1845–47	3.7	4.2	−3.0	1.1
1848–52	2.9	2.5	+1.2	3.7
1853–57	4.1	5.3	−2.4	2.8
1858–64	4.4	4.2	−3.0	1.1
1865–70	3.8	3.6	+1.1	4.7
1871–73	3.9	3.7	−6.2	−2.7
1874–79	3.2	2.7	+4.3	7.1
1880–87	3.3	2.6	+3.8	6.5
1888–90	3.8	2.9	−1.4	1.5
1891–95	2.6	1.6	+3.8	5.5

[1] *Publications* of the American Economic Association, XI, No. 4.

[2] Appreciation and Interest, 59.

It will be seen that a sum loaned during the period 1853–57 at market rates afforded the high nominal rate of 5.3 per cent., but tested by the purchasing power of principal and interest at the end of the loan period, as compared with that of the principal at the beginning, the gain was only 2.8 per cent. In 1871–73 the lender at market rates was receiving the fair nominal rate of 3.7 per cent.; but the real interest realized was —2.7 per cent.; that is, the lender was worse off by 2.7 per cent. than if he had invested in property, say, which paid no rent during this time. On the other hand, if we take a period like 1891–95, which paid a nominal rate of only 1.6 per cent., it is seen that the lender was a gainer by 5.5 per cent., as tested by his power to purchase commodities.

XXII. In the table below I have combined the results for the London market rates in order to show the average rate of real interest for longer periods, corresponding with the longer and more general price movements. These are as follows:

	Market rates.	Appreciation of money in commodities.	Real interest in commodities.
Falling prices..1826–51	3.5	1.5	5.0
Rising " ..1851–73	4.0	—1.5	2.5
Falling " ..1873–95	2.5	2.4	4.9

It will be seen that on the basis of these results the gain of the lender was 2.4 per cent. less on the average in the period 1851–73 than in the subsequent period 1873–95. It is perhaps the fairest assumption to regard one-half of this (that is, 1.2 per cent.) as a loss during the former period, and the other as a gain during the

latter. That is to say, the lender's loss from rising prices, estimated on the basis of London market rates, was 1.2 per cent. annually, while he gained by an equal amount under falling prices. Professor Fisher's conclusion regarding the latter period is that "the average debtor's loss in England for contracts made since 1874–75 has been two-thirds of one per cent. per annum, with a possible error of one-third of one per cent."[1] Mr. Fisher's computation of real interest for rising prices is based on the period 1853–64, which gives a higher rate of real interest than does the period 1851–73, and consequently a smaller difference when compared with the later period of falling prices.[2]

Similar computations based on New York rates of interest for the periods 1849–57 and 1875–91 (thus omitting the war period) shows the average rate of real interest for the former to be 4.1 per cent., and for the latter 7.3 per cent., or a difference of 3.2 per cent.[3] This we may consider as giving a loss for the lender in the earlier period of 1.6 per cent. annually and an equal gain in the later.

These calculations, as Professor Fisher reminds us, "are based on the public prices of bonds and rates on

[1] Appreciation and Interest, 73.

[2] The price index number for 1853, according to Sauerbeck, whose figures Professor Fisher uses, is 95, while the average index for the three years 1850–52 is only 78, which, when taken as the starting point, gives a considerably lower result in real interest for the period of rising prices. To avoid somewhat the effect of temporary fluctuations in prices, I have used in each case the average price index number of three years, as follows: 1825–27, 113; 1850–52, 78; 1872–74, 107; 1894–96, 64.

[3] Appreciation and Interest, 74.

money;" while "interest on private loans and farm mortgages, although influenced by the same causes which affect the money market, is less flexible and the debtor's losses or gains in these cases are doubtless somewhat greater."[1]

XXIII. As bearing upon this we may note that the decrease in interest rates on farm mortgages in the United States between 1880 and 1889, according to the census investigation, was one-tenth of one per cent. (from 7.62 per cent. to 7.52).[2] The prices of farm products, according to the Senate Committee's report, declined in these years from 110 to 91, or 17 per cent.[3] That is to say, while the annual interest charge on the farmer's mortgage had declined .1 per cent during the decade, the fall in prices of farm products had been increasing the burden of his debt by 2.2 per cent. annually.

This result, however, is somewhat exaggerated by temporary fluctuations in the prices of farm products for the years mentioned. A safer test is to use the average annual fall in the prices of all commodities for a longer period. If we use as a basis the fall in the prices for all commodities from 1875 to 1891, as given in the Senate Committee's report, we find an annual appreciation in the value of money of 2.0 per cent. (weighted average). We have then a fall in the annual interest charge of .1 per cent. in the course of the decade, and an appreciation in the burden of debt at the rate of 2.0 per cent. annually.

[1] *Ibid.*, 74.
[2] Eleventh Census, Real Estate Mortgages, 249.
[3] Report of the Senate Committee, I: 107.

It should be noted that the decrease in interest rates represents the change for the whole decade. It would be fair to say that one-half this amount represents the average annual saving to the debtor throughout the decade. Hence, in the case of the farm mortgage the annual saving in interest would be .05 per cent., which is so small that it cannot be regarded as a factor. Thus the facts for the decade 1880–89 show that falling prices increased the burden of the farmer's debt by 2 per cent. annually, and benefited the holder of the mortgage by an equal amount.

The average interest on mortgages on lots decreased from 6.69 per cent. in 1880 to 6.37 per cent. in 1889, or slightly more than .3 per cent.[1] The loss by falling prices may, of course, be considered the same as in the case of the farm mortgage.

We therefore deduct one-half of the amount of the fall in rates (or .15 per cent.) from 2.0 per cent., leaving 1.85 per cent. as the annual increase in the burden of indebtedness on lots during 1880–89, when measured by the prices of commodities; the lender in this case being a gainer by 1.85 per cent.

It would not be safe to draw general conclusions from the facts for a single decade. The results already reached from the study of the general course of prices and interest rates in the money market, point to a debtor's loss and creditor's gain during practically the same period, of 1.2 per cent. Probably this may be safely taken as a minimum.

[1] Eleventh Census, Real Estate Mortgages, 250.

XXIV. RENT.

Incomes derived from rent charges may for many purposes be classed with those derived from interest charges, since for long time periods both are governed by the prevailing rates of interest. The immediate factor determining rent charges, however, is the supply of rentable property, and this does not change as rapidly as does the demand for money when there is a change in the course of prices. When, therefore, we are considering the effects of price changes upon incomes, it is necessary to study these sources of incomes separately.

If we assume the same rise and fall in the money value of real property as takes place in the prices of other forms of property, the receiver of rent is affected only as regards the annual income from the rent charge, in contrast with the money lender who, we have seen, is affected as regards both interest and principal. Taking the example at the beginning of the chapter, and supposing the money lender to be now a property owner entitled to receive $50 in rent, a rise of 10 per cent. in prices would result in a decrease of one-eleventh in the purchasing power of the $50; that is, the $50 would have a purchasing power equal to that of only $45.45 at the beginning of the rent period. If, however, prices fell 10 per cent., he would receive a purchasing power equal to that of $55.55 at the beginning of the rent period.

Suppose we assume a rise or fall of 1 per cent., which corresponds more closely with the average annual price change since 1850. The loss in the case of rising prices

would then be .9 per cent., the gain in case of falling prices 1.1 per cent., of the rent charge, assuming that the change in prices is not anticipated by a change in the rent charge.

What data we have indicate that rent charges are to some extent at least accommodated to price changes. We should expect this to be particularly true of property used in the production of goods, owing to the stimulus afforded to productive enterprise by rising prices, and the depression which usually accompanies falling prices. These factors would have comparatively little force in the case of house rents and office rents, and here the margin of gain or loss would doubtless be greater.

Another fact to be considered is that during the present century rents have shown a continuous rise, independently of price changes. Sir Robert Giffen in 1883 estimated a rise in the rent charges paid by English laborers of 150 per cent. in the fifty years preceding, notwithstanding that prices of commodities were on a lower level at the end of the period than at the beginning.[1]

The following table of Sir James Caird for the course of rent charges in England points to an increase of 200 per cent. in rents of houses in the course of one hundred years:[2]

	1770.	1850.	1878.
	s. d.	s. d.	s. d.
Annual rent of cultivated land (per acre)	13 0	27 0	30 0
Weekly rent of laborer's cottage	8	1 5	2 0

[1] Progress of the Working Classes (New York, 1885), 14.
[2] Quoted by Nicholson, Political Economy, I: 422.

The following figures are given for rents in Massachusetts by the report of the state bureau of statistics of labor, 1897, covering average monthly rents:

	1869.	1872.	1878.	1881.	1897.
Four room tenements	$4.45	$14.75	$5.55	$ 7.99	$ 8.63
Six room tenements	7.54	16.00	9.43	12.25	11.61

The changes indicated in this table for the years between 1860 and 1878 are so remarkable as to need to be tested by other data, but unfortunately none has been available. The results of the French Office du Travail point to a somewhat different course of rent charges. The figures are for the average annual cost of lodging to the Paris workmen, in francs:[1]

1844–53.	1854–63.	1864–73.	1874–83.	1884–93.
120	170	220	270	320

We may then accept as established the fact of a continuous rise in rent charges irrespective of price changes. It results probably in the main from the increase in the value of real property due to the growth of population. But the money value of real property tends also to rise and fall with the rise and fall of general prices. Under falling prices, then, we should have two forces acting in opposite directions on the price of real property; hence its price would remain relatively stationary. Under rising prices two forces would be acting in the same direction, tending rapidly to increase the money value of real property.

If agreements as to rent charges were settled in ad-

[1] Salaires et durée du travail dans l'industrie française, tome IV, Resultats généreaux, 277.

vance upon the basis of prevailing charges, we might safely conclude that rising prices would injure the receiver of rent, while falling prices would benefit him. But if rent charges were fixed in advance on the basis of existing interest rates, a regime of rising prices would, on the contrary, prove beneficial to the receiver of rents. For we have seen that during rising prices interest rates rise so high as not only to afford the same real income, but also to offset in a small part the fall in the purchasing power of the principal; and since in real property there is no such fall that needs offsetting, the property owner would gain by the high rates of interest, while losing nothing on his principal, if we may so call it.

The former is probably the more nearly correct view. As stated at the start, the immediate factors affecting rent charges is the supply of rentable property relatively to the demand; and these, especially in the case of dwellings and offices, are not likely to be affected by price or interest changes. In the case of property used in production, the increased industrial activity under rising prices must lead to some increased demand for such property and hence to higher rents. But on the other hand, the losses which money lenders suffer under rising prices will encourage them to invest in property, and thus the building industry will be encouraged, and the supply of buildings will soon overtake the demand. Generally speaking, therefore, we should expect receivers of rent incomes to lose by rising prices and gain by falling prices. It is to be regretted that there are

no sufficient data available to test this; but fortunately for our study, the losses and gains are comparatively small here, and the result will not materially affect the conclusions for other incomes.

CHAPTER V.

WAGES.

XXV. The belief is commonly held that rising prices are injurious to wage-earners and falling prices beneficial to them. This is based on the assumption that when prices rise wages do not rise as rapidly, and, on the other hand, do not fall as rapidly when prices fall. Much emphasis is placed upon this view by Professor J. Laurence Laughlin in both his recent books,[1] and by others of the monometallist school. Professor Henry W. Farnam, writing of the fall of prices since 1873, says:

"The class which has probably gained most from falling prices during this period is the wage receiving class, for they have had an increase in income, and (barring rent) have enjoyed falling prices. And it is this class which would probably suffer the most if the currency were to be sufficiently inflated to raise prices."[2]

Professor R. Mayo-Smith, in an article in 1896 upon "Free Silver and Wages," quotes from the wage statistics of the United States Senate Committee, and on the basis of these reaches the following conclusion:

"So far as the trustworthiness of the statistics is concerned we can safely say that rising prices are disastrous to the working man, because wages rise more slowly than the cost of living."[3]

[1] See Facts about Money, 172–5, and Report of the Monetary Commission, 470.

[2] *Yale Review*, IV: 201.

[3] *Political Science Quarterly*, II: 470.

On another page he says:

"When prices rise wages also rise, but more slowly, so that for the time being the purchasing power of wages is less and the condition of the wage-earner is worse. This is one of least debatable propositions of political economy. It rests upon undisputed historical evidence, and is confirmed by common sense or what we know of the nature of man. On this point inductive and deductive economists agree perfectly."[1]

Even President Walker, who believed that rising prices tend in the long run to benefit all classes, expressed the belief, in his lectures on Money, Trade and Industry, that "the wages of labor seldom or never rise so fast as the prices of commodities."[2]

XXVI. Let us examine this proposition as applied to rising prices when caused by an increasing supply of the precious metals. Suppose that this year new discoveries of gold are made in some country sufficient to raise prices throughout the gold standard countries. Assuming that these new supplies come into a few hands, which is probably the rule, by what process will this result directly in a rise of prices? Certainly the sudden enriching of a few miners will not lead directly to any considerable increase in the consumption of commodities. Hence the rise of prices must result in some indirect way.

If the new money supply were used for speculation in commodities, this would tend to raise prices in advance

[1] *Ibid.*, 468.
[2] P. 92.

of wages. It is a fair assumption, however, that in the main these new supplies would be used in new mining and other industrial enterprises. The demand for raw materials and machinery would doubtless somewhat increase, but the demand for the commodities of common consumption would be little affected in a direct way. Mainly there would be an increased demand for labor, and here doubtless is the primary cause of a rise of prices.

For it is pretty clear that the only way in which an increase in the gold supply will cause a rise in the prices of commodities is by causing in some way an increased demand for commodities, and this increased demand must come in the main by and through an increased purchasing power in the hands of the masses, comprising mainly the labor class; and this increased purchasing power can only come through increased wages or wages to more people.

In addition, it is a well-known fact that mining has a fascination for very many people, and among laborers there is a strong tendency to desert other occupations unless the wage received equals what one may reasonably expect to earn by mining on his own account. And this influence on laborers is not confined to the immediate vicinity of the gold fields, but attracts all classes from a distance; for a striking example we need only recall the recent rush of tens of thousands to Alaska. The tendency of this is to compel a rise of wages in industries, new and old, in the surrounding country to the highest point the industries will bear, in order to retain a sufficient supply of labor.

Such seems to be the course of events affecting wages where rising prices result from new discoveries of precious metals.[1] The wage question, however, is so complicated that no theory is entitled to acceptance unless the available facts in the history of price and wage movements support it. We shall, therefore, devote most of the chapter to a study of the available data.

XXVII. It is worth while to notice first some facts regarding wages in earlier periods of price changes. It is well known that in some of the earlier periods of rising prices English laborers suffered a great reduction in the purchasing power of their wages, and this fact is often referred to as an illustration of the injurious effects of rising prices upon wage-earners. Professor Mayo–Smith, in the article already quoted from, speaks of the decline in the condition of the working class in England in the time of Elizabeth as "a striking case" in illustration of the law that "wages rise more slowly than prices."[2]

Thorold Rogers, who is the generally accepted authority on wages and prices for this period, seems, however, to have regarded the rise of prices as not necessarily a cause of the degradation of the labor class. His own view as to the real cause is set forth at such considerable length that none need doubt that he held the law for the assessment of wages responsible.

[1] The effect of a depreciating paper currency upon wages is discussed on pp. 448-449.

[2] Quoting from Professor Thorold Rogers a statement regarding the rise of prices, he offers it as the cause assigned by Rogers for the condition of labor. No other explanation is given. *Political Science Quarterly*, XI: 471.

"The government of Elizabeth was, however, convinced that the legal restraint of wages was a necessity or a benefit or both. . . . ." Hence, "the Justices in Quarter Sessions are empowered to fix the rate of wages in husbandry and in handicrafts, and they do not let their powers lie idle. . . . . The wages of labor do conform, notwithstanding the continual increase in the price of the necessaries of life, to the assessments of the Quarter Sessions, and the system is continued under legal sanction until 1812. . . . ."[1] "The regulations of the magistrates during the seventeenth century brought the laborer down to absolute penury, and to reliance on the Poor Law Relief."[2]

Professor W. A. S. Hewins, another student of this period, while holding the belief that it was not the pur-

[1] Six Centuries of Work and Wages (Putnam's ed., 1884), 352–3.

[2] History of Agriculture and Prices, V: xii.

Some of the specific provisions of the law are worth noting. "The fifth [clause enacts] that all persons between the ages of 15 and 60, not otherwise employed or apprenticed, are compelled to serve in husbandry;" the sixth, "that masters unduly dismissing servants are liable to a penalty of 40s., while servants unduly quitting employment shall be imprisoned;" the seventh, "that servants are not to leave a city or parish without a testimonial, and that those who do so without it shall be imprisoned, or if they held a forged one, should be whipped." By the ninth clause, "the assessors are to define the hours of work and 1 d. an hour is to be deducted for every default;" by the tenth, "any who struck work were made liable to a month's imprisonment and five pounds fine;" by the eleventh, "the rates of wages were to be fixed by the justices in the Quarter Sessions, certified in Chancery, approved by the Privy Council, and proclaimed by the sheriff; by the thirteenth, "penalties are put on the givers of higher wages of ten days imprisonment and £5 fine, on the receiver twenty-one days imprisonment, the contract being declared void."—History of Agriculture and Prices, V: 611–613.

pose of the Wages Assessment law to depress wages,[1] agrees with Professor Rogers regarding its effect:

"They (the Justices) were the last people in the world who should have been intrusted with an operation of such difficulty and complexity as the regulation of wages. They endeavored to do so only at long intervals of time, when they probably talked the matter over with the employers in the district and gave legal sanction to the current rate of wages, which they took as the maximum. Thus the statute would become the instrument of oppression in the hands of unscrupulous employers. They could effectually crush all attempts to secure an advance, if they cared to do so, by legal proceedings against the delinquents, in which they would certainly be supported by the Justices. We may well believe that many employers, themselves ground down by the landlords, or subjected to keen competition in the towns, would use the Wages Assessments as an excuse for harshly treating the laborers, when they could find no other justification."[2]

Whatever view is held as to the purpose of the Wages Assessment law, and as to its enforcement in later years, I have found no reason for doubting that it was the

[1] See *Economic Journal* (London), September, 1898.

[2] English Trade and Finance, 87. But see also Cunningham, Growth of English Industry and Commerce in Modern Times (Cambridge, 1892), 43–45, 200, 359. Dr. Cunningham inclines to the view that wages were not assessed with regularity and that the assessments were not well enforced. The custom of assessing at long intervals would be to the advantage of the wage earners when prices were falling, and injurious to them when prices were rising.

prime cause of the low condition of laborers during the sixteenth and seventeenth centuries.

XVIII. The next great rise took place between 1780 and 1810. The conditions affecting wages in England had changed by this time; the law for the regulation of wages had fallen into disuse,[1] but another, whose aim was to prevent laborers from combining to secure an advance, was now enforced. Of this law Thorold Rogers says:

"By construction of law, the offense of conspiracy; which was originally a combination for the purpose of bringing false evidence against others, or for the purpose of subsequently committing a crime; was extended to those associations of workmen whose purpose it was to raise the rate of wages by such a combination. . . . ."

"But at the conclusion of the eighteenth century an act of parliament was carried which declares all contracts, except between master and man, for obtaining advances of wages, altering the usual time of working, decreasing the quantity of work and the like, illegal. Workmen who enter into such illegal combinations are punishable by imprisonment, and a similar punishment is inflicted on those who enter into combinations to procure an advance of wages. . . . . This act, it may be remembered, was passed at a time when wheat was at famine prices, ranging from 100 s. to 150 s. a quarter, and the magistrates were beginning to confess the atrocious cruelty of the Quarter Sessions Assess-

[1] Cunningham, *Op. cit.*, 359.

ments of wages by adopting the system of Poor Law allowances."[1]

On this period Dr. Cunningham observes:

"When the legislative regulation of hours and wages was entirely discontinued, the combination laws still survived to prevent the artisans from joining together to drive more favorable bargains with their masters; indeed, they were re-inforced with greater stringency in 1800."[2]

This last form of repression, as will be observed from Dr. Cunningham's statement, was directed against artisans. There seems to be no evidence that it was enforced or intended to be enforced against agricultural laborers. Nevertheless it could not fail to affect them injuriously; for the enforcement of the law against artisans would tend to drive laborers out of the trades, and thus to force down wages in other branches of industry. It seems remarkable that in spite of these adverse conditions wages in England should have kept pace so nearly with the rise of prices, as appears from the tables of Arthur Young. This authority compares agricultural wages with average prices, using a set of index numbers in which the average prices and wages for 1804–10 are represented by 20:

[1] Six Centuries of Work and Wages, 399. Rogers's conclusion is: "For more than two centuries and a half the English law and those who administered the law were engaged in grinding the English workmen down to the lowest pittance, in stamping out every expression or act which indicated an organized discontent, and in multiplying the penalties upon him when he thought of his natural rights.—*Ibid.*, 398.

[2] Growth of English Industry and Commerce in Modern Times, 359.

XXIX. INDEX NUMBERS OF PRICES AND AGRICULTURAL WAGES IN ENGLAND, 1767–1810 (Index 20)[1].

	Wheat.	Barley and oats.	Beef, mutton, etc.	Beef and pork.	Wool.	Horses.	Coal.	Manufactures.	Agricultural wages.
1767–1789	11	11	11½	11	15⅓	17¼	14⅓	14	12½
1790–1803	13	16¼	16½	17	16⅙	19½	15¾	15½	16¾
1804–1810	20	20	20	20	20	20	20	20	20

In the table four commodities show a more rapid rise than do wages, and four a less rapid rise.

The following table of wages, 1800–1836, is made up from Porter's figures for weekly wages of artisans in various parts of the United Kingdom. I have selected those quotations which run for the longest series of years:

WEEKLY WAGES OF ARTISANS IN THE UNITED KINGDOM, 1800–1836.[2]

	1800.	1810.	1820.	1830.	1836.
	s. d.	s. d.	s. d.	s. d.	s. d.
Carpenters (Greenwich Hospital)	18	34	31 6	33	29 3
Bricklayers (Greenwich Hospital)	18	31	30 6	28 6	26 9
Masons (Greenwich Hospital)	17	31 6	31 6	32	29 1½
Plumbers (Greenwich Hospital)	19 6	34 6	34 6	33	29 11
Tailors (Manchester)	----	18 6	18 6	18[3]	------
Shoemakers (Manchester)	----	16	16	15[3]	------
Hand loom weavers (Bolton)	25	19 6	9	5 6	------
Spinners (Manchester)	----	10 1½[3]	----	8 5⅓[3]	------
Wool combers (Leicester)	----		18	14	------
Stocking makers (Leicester)	----	----	12 9	7 8½	------
Seamen (Am. Trade, per month)	----	----	50	50	60[3]
Laborers (Bedford, Middlesex)	----	18[3]	12	12	------
Compositors, book (London)	33	33	36	36	36
Printers (London)	----	----	21[3]	21	21

[1] Quoted by Cunningham, *Op. cit.*, 691.

[2] From Porter's Progress of the Nation, II: 251–54.

[3] Quotations from the nearest year for which data are given.

It will be seen that in four out of the six cases for which data are given for 1800 and 1810 there is between these years a large gain in money wages, running from 60 to 90 per cent.; in one there is a fall, and in one no change. Jevons's index number for prices in 1800 is 141, and the highest point reached is 157 (in 1809). This indicates altogether a greater rise in wages than in prices between 1800 and 1810. For the period of falling prices (1810–1836) it will be seen that of the fourteen industries, eleven show a decline in money wages; two show a rise and one no change. Jevons's price index number for 1810 is 142 and for 1836 is 86.

We have, then, for the ten years of rising prices a gain in purchasing power in four of six industries. During falling prices there is a gain (though generally less pronounced) in purchasing power of wages for all but two industries. Both periods were, therefore, favorable to wage-earners.

On the whole there is nothing in either this table or the preceding one to show that rising prices are injurious to labor; the tendency would seem to be the reverse, if we make some allowance for the influence of the adverse laws.

XXX. Before attempting any statistical study of later periods of rising and falling prices we may note that there has been for the present century a very marked advance in wages. Taking the statistics for agricultural wages, for which there are comparatively full data and which probably reflect fairly enough the course of all wages, the evidence of improvement is conclusive. The following

figures from Sir James Caird are for weekly wages in England.[1]

	1770.	1850.	1878.
Wages	7s. 3d.	9s. 7d.	14s.

From what information we have the level of prices appears to have been nearly the same in 1770 as in 1878, which indicates an increase in purchasing power during the century of about 100 per cent. Compare with Caird's figures the following averages which are made up from the figures of Sir Robert Giffen, covering seven districts of England:[2]

	1835.	1885.
Wages	10s. 7d.	15s.

Remembering that prices in 1885 were some 25 per cent. lower than in 1835 it appears that, roughly speaking, the purchasing power of wages was doubled in these fifty years; that is to say, the improvement for the century in England has come largely since the repeal of the labor laws, though the figures of Porter show considerable rise in real wages from 1800 to 1836.[3]

[1] Quoted in Nicholson, Principles of Political Economy, I: 422.

[2] Mulhall, Dictionary of Statistics, 580. Cf. Giffen, Essays in Finance, 2d series. 415–39, 470.

[3] Since these figures were collected there have appeared in the *Journal of the Royal Statistical Society* the first two of a series of papers by Mr. A. L. Bowley on "The Statistics of Wages in the United Kingdom during the last Hundred Years." These cover agricultural wages in England and Scotland. The wage statistics used are drawn from a number of authorities, and have been studied by Mr. Bowley with reference to the circumstances under which they were recorded, with a view to the presentation of the course of wages in a series of index numbers. The results agree substantially with the figures given in the text. The index numbers for England for years of special interest are as follows:

	1767–70.	1795.	1824.	1833.	1850.	1860.	1872.	1880.	1892.
Wages	53	66	71	79	71	87	111	101	100

See *Journal of the Royal Statistical Society*, LXI: 706–7.

In France and the United States the advancement is marked during the whole 100 years. The figures of de Foville for yearly earnings in agriculture in France from 1788 to 1872 are as follows (in £):[1]

	1788.	1813.	1840.	1852.	1862.	1872.
Earnings	6	16	20	22	28/16	32

The following statistics for agricultural wages in America are taken from Carroll D. Wright's History of Money and Prices in Massachusetts,[2] and give average daily earnings in cents:

	1780.	1790.	1800.	1810.	1820.	1830.	1840.	1850.	1860.	1880.
Wages	31	39	47	77	78	80	87	95	101	131

On the whole the figures for France and America indicate a greater advancement during the century than in England, perhaps to be explained in part by the comparatively low state of agriculture in England in the latter half of the period. It appears also that the condition of labor in England about 1770 must have compared well with that of the other two countries. As that was a time of comparatively low prices the law regulating wages had doubtless operated favorably for working men during the immediately preceding period of falling prices. It was in the period of rising prices (*i. e.*, the sixteenth and seventeenth centuries), that the Wages Assessments had wrought their mischief.

It can hardly be claimed that the statistics for the period of price changes at the beginning of the century are accurate enough for minute calculations on the relative increase in the purchasing power of wages.

[1] Quoted by Gide, Political Economy, 504.
[2] P. 298.

Nevertheless one conclusion seems clear. In the period of rising prices, between 1780 and 1810, agricultural wages in America appear to have increased by 150 per cent.; in France, between 1788 and 1813, by 100 per cent. As compared with this increase in wages, the level of prices for 1782 is represented in Jevons's index tables by 100, and for 1809 (the year of highest prices), by 157, showing an increase of 57 per cent. After making all necessary allowances for discrepancies there is nothing in these figures to confirm the so-called law that prices rise faster than wages. Appearances point rather to the contrary.

XXXI. The large increase in real wages in the present century has a bearing upon the wages question in recent years in its relation to price changes. Any period of considerable length would doubtless show a rise in real wages, and hence it would be possible to make a period of either rising or falling prices seem favorable to wages, by confining the demonstration to the single period. The question whether rising prices or falling prices are the more favorable can be determined, in so far as statistics enable us to determine, only by comparisons. Accordingly we shall attempt to study the two recent periods of price changes in this way.

A word should be said at the start regarding the method of comparison. What seems to us the fairest method is to make the beginning of each period of price movement a basis for computing the percentage of increase of the period. To illustrate how different results

might be reached by use of different methods, let the purchasing power of wages in 1870 be represented by the index number 100; in 1880 by 120, and in 1890 by 142. The absolute gain is greatest in the latter decade, and it would be proper for some purposes to make the comparison in this way. The importance, however, of an advance in wages during a certain period must depend rather upon the proportionate increase. For it is clear that an increase from $1 to $2 in wages would mean more to the wage-earner than an increase from $2 to $3. The relative importance of these gains is best represented, no doubt, by the percentages of increase (100 and 50). In the preceding example the increase in the supposed wage for 1890 over that of 1880 is only 18 per cent., which is less than the percentage for the decade 1870–80. Therefore, judging by the importance of the gain, we regard the decade of 1870–80 as the more favorable.

XXXII. The following table gives the result of an investigation into the course of wages in the United Kingdom from 1860 to 1891, by Mr. A. L. Bowley, and presented by him before the Royal Statistical Society in 1895. Purchasing power is computed by the use of Sauerbeck's index numbers. I have added the figures for the percentage of increase:

CHANGES IN MONEY AND REAL WAGES IN THE UNITED KINGDOM, 1860–1891.[1]

	Money wages.	Purchasing power.	Increase in purchasing power. For period.	Annual.
1860	100	100	----------	-----
1874	138	134	(14 yr.) 34%	2.1%
1891	140	192	(17 yr.) 43%	2.1%

[1] *Journal of the Royal Statistical Society*, 58: 248.

So far as this table throws light upon the question both periods appear to have been very favorable to a rise in real wages. Mr. Bowley's method of investigation received commendation from members of the Society and his work indicates painstaking and unprejudiced effort.

XXXIII. Below are given the results of an elaborate investigation into wages in France by the French Office du Travail covering the period 1840 to 1893. The table shows the relative increase, allowing 100 to represent the average rate in 1891–93.[1]

WAGES IN FRANCE.

	1840–45.	1853.	1860–65.	1874.	1883.	1891–93.
All workmen in the departments[2]	52	--	69	--	--	100
Masons (provinces)	--	52	--	78	91	100
Day laborers (provinces)	--	49	--	80	89	100
Carpenters (provinces)	--	51	--	80	92	100
Printers (provinces)	--	52	--	76	90	100
Nine classes of workmen (provinces)	--	52	--	79	90	100
All workers in coal mines	50	52	62	85	91	100
Building trades in Paris	54	57	70	77	100	100
Normal index No. for each period	52	52	68	80	91	100

The Office du Travail also investigated the expenses of living. Excepting for Paris, the results deal chiefly with the beginning and close of the period, and hence do not throw light upon the changes during separate periods of price movements. The estimated annual ex-

[1] Salaries et durée du travail dans l'industrie française, Tome IV, Resultats généreaux, 277.

[2] *I. e.*, not including the department of the Seine.

pense of the Parisian workman for food, light, heat and lodging, is as follows:[1]

	Food, heat, light.	Lodging.	Total.
1844–53	931 fr.	120 fr.	1051 fr.
1854–63	1052	170	1222
1864–73	1075	220	1295
1874–83	1093	270	1313
1884–93	993	320	1353

Such comparison as it is possible to make between this table and the preceding one points to an average increase of about one per cent. annually in purchasing power of wages, both before and after 1873. The latter table is remarkable in indicating an increase in the total cost of living during falling prices. The factor responsible for this result is rent, which is seldom included in index tables.

XXXIV. The reader scarcely needs to be reminded that the tables here presented are not to be taken as an indication of more than the general course of real wages. In no country are the wage statistics complete and accurate enough to justify the placing of emphasis on minute differences. Often such statistics are collected with a view to support some partisan end, of which we have had notable instances in this country. Of the statistics in America extending back through part or all of the period of rising prices, the most reliable, so far as can be ascertained, are those given in the reports of the Massachusetts bureau of labor statistics, those of Joseph D. Weeks, on wages in the coal, iron, glass and pottery industries, and the employers' returns for urban in-

[1] *Op. cit.*, 287.

dustries, given in the report of the United States Senate Committee on Wholesale Prices, Wages, and Transportation.

It must be noted also that in the computation of purchasing power (or real wages) the results reached will vary considerably, according to the index numbers selected to represent price changes. As an illustration of this, I have computed the purchasing power of wages for the years 1851–2, 1871–2 and 1891–2, using the Senate Committee's simple averages of money wages and correcting them for purchasing power by the use of each of the three colums of price index numbers in Falkner's table.[1] The results are as follows:

MONEY AND REAL WAGES IN AMERICAN URBAN INDUSTRIES.

	Money wages (gold).	Purchasing power of wages computed by use of— simple average, of prices.	Increase.	weighted average, including rent.	Increase.	weighted average, excluding rent.	Increase.
1851–2	90.6	87	----	91.7	----	92.3	----
1871–2	150.0	120	38%	133.6	46%	123.0	33%
1891–2	161.0	177	47	168.2	26	172.4	40

In the second column of Falkner's table for average prices, rent has been included as a constant factor, and it is seen that the use of this column makes the earlier period more favorable to real wages, the other two columns giving an increase in favor of the later period. As rent is an important factor in the outlay of most workingmen, much could be said in favor of using this column in any representation of the relative situation of

[1] United States Senate Report (1893) on Wholesale Prices, Wages and Transportation, Vol. I, pp. 100, 180, 194, 199.

wage earners in different periods. Having no satisfactory data, however, on the course of rent charges during the periods in question, it has seemed better not to attempt to cover this factor in corrections for purchasing power. Accordingly, in the following computations of purchasing power, I have used the weighted averages that exclude rent. These correspond closely with the index numbers of other authorities.

In cases where wage statistics are given for a single year, I have computed the purchasing power by use of the average price index numbers for three years (that is, including the year preceding and that following) in order to obviate somewhat the effect of temporary fluctuations in prices.

XXXV. In the following table are given the computed real wages in agriculture, based on the returns for monthly wages reported by the Massachusetts bureau of labor statistics for the years 1860, 1872 and 1897.

MONEY AND REAL WAGES IN AGRICULTURE, FOR MASSACHUSETTS, 1860–97.[1]

	Money wages (gold).	Wage index number.	Price index number.	Purchasing power.	Increase. For period.	Annual.
1860	$13.60	100	100	100	----------	----
1872	23.09	169	120.6	140	(12 yr.) 40%	2.9%
1897	18.50	136	72	189	(25 yr.) 35	1.2

This table indicates that the earlier period was much more favorable to real wages in agriculture. It happens, however, that wages in certain industries, including

[1] Report of the Massachusetts Bureau of Statistics of Labor, 1897, p. 4. Cf. Spahr's figures based on the Massachusett's report of 1872 and census reports of 1860 and 1890, The Distribution of Wealth, 116.

agriculture, were low about 1860, as compared with the general trend of wages throughout the period of rising prices, and this fact gives a greater percentage of increase in purchasing power for the years 1860 to 1872 than the general course of prices and wages throughout the twenty years of rising prices would warrant. I have attempted, therefore, to carry the comparison back to 1850 by use of the figures for agricultual wages given in Wright's History of Wages and Prices in Massachusetts. The latter are for daily wages, and in order to make the comparison the figures for both daily and monthly wages for 1860 are used, each being called 100:

MONEY AND REAL WAGES IN AGRICULTURE, FOR MASSACHUSETTS, 1850–97.[1]

	Money wages.	Wage index number.	Price index number.	Purchasing power.	Increase. For period.	Increase. Annual.
1850	$ 0.95 (per day)	94	91	105.3	----------	----
1860	1.01 " "	100	100	----	----------	----
1860	13.63 (per mo.)	100	100	----	----------	----
1872	23.09 " "	169	120.6	140	(22 yr.) 36%	1.4%
1897	18.50 " "	143	72	189	(25 yr.) 35	1.2

This doubtless represents the course of real wages in agriculture more nearly than does the former table, so far as concerns the period of rising prices.

XXXVI. Below are given the index numbers for money wages and purchasing power in the coal, iron, glass, and pottery industries, for the years 1860, 1872 and 1891, computed from the figures of Mr. J. D. Weeks. The investigation covers seventeen divisions of work. I

[1] C. D. Wright, History of Wages and Prices in Massachusetts, in the Twenty-eighth annual report of the Massachusetts bureau of statistics of labor, 4.

have taken the wage index numbers for each division as computed by the statistician of the Senate Committee, and after reducing these to the gold basis have calculated the changes in purchasing power in the case of each. This detailed study has seemed justified by the recognized excellence of the data collected by Mr. Weeks.

RELATIVE WAGES IN COAL, IRON, GLASS AND POTTERY INDUSTRIES.[1]

	Index of Money Wages (gold).			Purchasing power.		
	1860.	1873.	1891.	1860.	1873.	1891.
Anthracite coal, miners	100	206.9	177.0	100	177	189
Bar iron, puddlers	100	169.9	138.9	100	145	149
" " (helpers)	100	187.7	156.2	100	161	165
" rollers	100	125.0	119.8	100	107	127
Green glass bottles, blowers	100	182.7	213.0	100	156	226
Iron ore, miners	100	176.3	126.0	100	151	134
" skilled labor	100	191.8	221.1	100	164	234
" unskilled labor	100	195.6	206.7	100	168	219
" blasters & drillers	100	156.9	122.9	100	134	130
Metal and metallic goods, moulders	100	103.8	110.0	100	89	117
Metal and metallic goods, cupolmen	100	79.0	88.9	100	68	94
Metal and metallic goods, melters	100	89.0	87.5	100	67	93
Pig iron, keepers	100	157.2	108.1	100	134	114
" fillers	100	172.6	124.1	100	148	131
Pottery and hollow ware, pressmen	100	111.5	161.0	100	95	171
Pottery, handlers	100	119.5	163.9	100	102	174
Window glass, blowers	100	117.6	150.6	100	101	160
Average				100	127	155
Increase for period					27%	22%
Annual increase					1.9	1.1

[1] Report of the United States Senate Committee on Wholesale Prices, Wages and Transportation, I: 181–83. Purchasing power of wages computed by use of Falkner's (gold) prices, weighted averages, as follows: 1860, 100; 1873, 118.5; 1891, 94.4.

The result shows for the seventeen industries an increase in average real wages of 27 per cent., or 1.9 per cent. annually, from 1860 to 1873. For the eighteen years from 1873 to 1891 the increase is 22 per cent., or 1.1 per cent. annually. A comparison for the two periods in the case of each division will show for ten of the seventeen divisions a greater increase in the earlier period; for the other seven divisions the gain is greater in the later period.

Owing, however, to a fact already alluded to, the low level of wages in 1860, the computation has been carried back to 1851, and a comparison made of the average wages for 1851–2, 1871–2 and 1891. The results of these calculations are given on page 482. Of the seventeen industries ten show a greater percentage of gain in the first twenty years, and seven a greater percentage in the second twenty. The average of the index numbers of purchasing power are: 1851–2, 96; 1871–2, 122; 1891, 154, showing an increase of 27 per cent. in the earlier period and of 26 per cent. in the later. These figures probably represent the course of real wages more correctly than do those of the preceding table.

RELATIVE WAGES IN COAL, IRON, GLASS AND POTTERY INDUSTRIES, 1851–1891.

	Index of Money Wages (gold) (1860 = 100).			Purchasing Power (1860 = 100).		
	1851–2.	1871–2.	1891.	1851–2.	1871–2.	1891.
Anthracite coal, miners	103.7	194.3	177	106	163	187
Bar iron, puddlers	102.7	175.4	138.9	105	147	147
" " (helpers)	102.7	193.6	156.2	106	162	165
" rollers	78.8	135.6	119.8	80	114	127
Green glass bottles, blowers	121.7	190.8	213	124	160	226
Iron ore, miners	81	146.5	126	82	123	133
" skilled laborers	84.2	175.4	221	86	147	234
" unskilled laborers	80	177.8	206.7	82	149	219
" blasters & drillers	94.1	159.5	122.9	96	134	130
Metals and metallic goods, moulders	108.3	103.8	110	110	87	116
Metals and metallic goods, cupolmen	100	79.9	88.9	102	66	94
Metals and metallic goods, melters	100	88.9	87.5	102	75	93
Pig iron, keepers	87.1	142.5	108.1	89	120	114
" fillers	78.1	156	124.1	80	131	131
Pottery and hollow ware, pressmen	76.2	108.9	161	78	91	171
Pottery, handlers	84.7	109.1	163.9	86	91	174
Window glass, blowers	120.5	133.9	150	123	112	160
Average, 17 industries				96	122	154
Increase for period					27%	26%
Annual increase					1.2	1.2

XXXVII. On page 483 are given some computations based on the average wages reported by the Massachusetts bureau of statistics of labor. The table covers the nine industries for which the data are fairly complete back to 1860. In the bureau's summary no averages are computed for 1860, and the averages here given (excepting for agriculture) are computed by the writer from the figures for

the several subdivisions in each industry. Wherever the figures were wanting for any subdivision it was assumed that the same rate of increase or decrease took place as for the subdivisions in which the figures are given. In a comparison of the respective gains for the two periods in the case of each industry, four of the nine show a greater annual gain in purchasing power in the period 1860–72, four a greater gain in the later period, and one an equal gain in both.

This table is offered with less confidence in the trustworthiness of the results than are the others, owing to the incompleteness of the data for 1860:[1]

MONEY AND REAL WAGES FOR MASSACHUSETTS INDUSTRIES, 1860–97.[2]

	Average weekly wages (gold).			Purchasing power.		
	1860.	1872.	1897.	1860.	1872.	1897.
Agriculture	$13.63	$23.09	$18.50	100	140	189
Blacksmithing	9.30	16.44	16.00	100	146	253
Boots and shoes	10.26	12.71	11.90	100	103	161
Building trades	10.03	15.66	15.83	100	129	220
Cabinet making	11.47	14.21	13.02	100	103	158
Carriages	10.91	17.31	13.51	100	131	172
Clothing makers	7.16	9.71	9.01	100	112	175
Machines & machinery	9.01	13.84	10.80	100	127	165
Paper	5.04	7.37	9.47	100	121	261
Av. purchasing power,				100	124	195
Annual increase, per cent.					1.8	1.8

[1] The carpet industry is not included in the table, as an error was found in the data for 1872. The matter being called to the attention of Mr. H. G. Wadlin, the chief of the bureau, he replied that an examination of the summary had disclosed an error also in the figures for Metals and Metallic Goods for 1872. The discrepancies make the two industries show a very high rate of increase in wages after 1872, which, it may be noted, would tend to vitiate any results based on an average for all the industries.

[2] Twenty-eighth annual report of the Massachusetts bureau of statistics of labor. The price index numbers used in correcting for real wages are: 1860, 100; 1872, 121; 1897, 72.

The wage returns in the United States census reports have been made to indicate very remarkable rates of increase;[1] but a number of writers have shown them to be untrustworthy for purposes of comparing successive decades or periods.[2] It is not within the scope of this study to discuss the defects of these returns, and they are mentioned here only in order to give the reason for their omission.

XXXVIII. The figures for average wages in the report of the United States Senate Committee on Wholesale Prices, Wages, etc., have also been severely criticized;[3] although the original data furnished to the committee by the Department of Labor have met with little objection. In addition to the Senate Committee's averages, which are given on page 477, I insert here the results of two later computations, by Dr. C. B. Spahr and Mr. A. L. Bowley. Those of the former (reduced to the gold basis) are given below, the figures for purchasing power being added by the present writer:

[1] For example, by M. G. Mulhall, *North American Review*, June, 1895, "Wealth of the United States;" C. D. Wright, *Atlantic Monthly*, 80: 305; J. Stephens Jeans, *Fortnightly Review*, 58: 752.

[2] Eleventh census, Manufacturing Industries, I: 14, III: 10; H. L. Bliss, *American Journal of Sociology*, 2: 515–531, 3: 359–363, and *Journal of Political Economy*, 4; 86–91; C. J. Bullock, "Wage Statistics of the Federal Census," Publications of the American Economic Association, N. S., No. 2, pp. 343–68.

[3] A. L. Bowley, *Economic Journal*, V: 370–75; C. B. Spahr, "Distribution of Wealth in the United States," 103–111.

AVERAGE WAGES IN AMERICAN URBAN INDUSTRIES, 1860–1891.[1]

	Daily wages (gold).			Purchasing power.		
	1860.	1873.	1891.	1860.	1873.	1891.
Agricultural implements	$1.38	$1.70	$1.72	100	103	132
Ale, beer and porter	1.20	1.79	2.42	100	126	214
Books and newspapers	1.04	1.93	1.55	100	157	158
Building trades	1.56	2.54	2.64	100	135	179
Carriages and wagons	1.21	2.02	2.44	100	141	213
City public works	1.23	1.94	1.81	100	133	156
Cotton goods	.78	1.33	1.24	100	144	168
Dry goods	.95	1.25	2.10	100	111	234
Ginghams	.81	1.42	1.31	100	148	172
Groceries	1.09	1.47	2.14	100	114	208
Illuminating gas	1.18	2.44	1.99	100	175	179
Leather	1.26	1.72	1.63	100	115	137
Lumber	.69	1.24	1.32	100	151	202
Metals and metallic goods	1.44	2.07	2.01	100	122	148
Paper	.88	1.19	1.36	100	114	164
Railroads	1.64	2.46	2.55	100	127	165
Sidewalks	1.80	3.24	3.55	100	152	209
Spice	1.12	1.43	1.62	100	108	153
Stone	.96	1.56	1.46	100	137	161
White lead	1.15	1.56	1.40	100	114	129
Woolens	.86	1.14	1.38	100	112	170
Average				100	130	174
Increase for period					30%	34%
Annual					2.0	1.7

The table shows an average annual increase of 2 per cent. in purchasing power for the period 1860–73 and 1.7 per cent. for 1874–91.[2] A comparison of the respect-

[1] Spahr, Distribution of Wealth in the United States, 110.

[2] Dr. Spahr computes an average wage for all industries by giving weight to each industry according to the number of employes investigated rather than according to the number of employes in each industry as shown by the census; the latter being the method of the

ive gains for the two periods in the case of each industry shows for fourteen of the twenty-one a greater annual gain in the earlier period.

Mr. A. L. Bowley, after a study of the same data, decided to exclude as insufficient all excepting those for building, cotton, wool, metals and stone. His results, which are given below, include computations for purchasing power based on both the simple and weighted averages of prices in Falkner's tables. The percentages of increase in purchasing power are added by the present writer:

WAGES IN SELECTED AMERICAN INDUSTRIES, 1860–1891.[2]

	Money wages (gold).	Purchasing power of wages computed by simple average of prices.	by weighted average of prices.
1860	100	100	100
1871–3	148	119 (Annual inc.) 1.5%	123 (Annual inc.) 1.7%
1891	148	160 " 1.6%	157 " 1.3%

Mr. Bowley's results show that in the five industries covered by his computations the difference in favor of one period or the other depends upon the selection of price index numbers to be used in correcting for purchasing power. The gain for the first period, as shown by the three authorities (the Senate Committee, Dr. Spahr and Mr. Bowley), is in each case so marked that, after making allowance for possible errors, they leave no

Senate Committee's statistician. The results in the above table are simple averages.

Dr. Spahr's results for general wages are: 1860, $1.18; 1873, $1.81; 1891, $1.69. These figures give an annual increase of 1.9 per cent. for 1860–73 and 1.0 per cent. for 1873–91.

[2] *Economic Journal*, V: 381.

question that the years of rising prices were very favorable to the advance of real wages.

XXXIX. To recall now the facts briefly, the figures for England, France and America, for the period of rising prices at the beginning of the century, indicate altogether a considerably greater rise in wages than in prices. For the period between 1850 and 1874 we have in the preceding pages twelve sets of computations based on the generally accepted wage statistics of that period. The result shows in each case a marked increase in purchasing power of wages, ranging from an average annual increase of 1.2 per cent. for the coal, iron, glass and pottery industries from 1851–72, to an average annual increase of 2.9 per cent. in agriculture for 1860–72, based on the figures of the Massachusetts bureau of statistics of labor. That is to say, wages in each case rose faster than prices by the percentages indicated. With these facts one will re-read with surprise Professor Mayo-Smith's campaign statements: "When prices rise, wages also rise, but more slowly, so that the condition of the wage-earner is worse. This is one of the least debatable propositions of political economy. It rests upon undisputed historical evidence, and is confirmed by common sense or what we know of the nature of man. On this point inductive and deductive economists agree perfectly."[1]

[1] *Political Science Quarterly*, XI: 470. Professor Mayo-Smith seems to have based his conclusions on the course of wages in the United States during the five years of the Civil War, when our paper currency was undergoing great fluctuations, this being the only statistical evidence he offers. Surely Professor Mayo-Smith would not maintain that this was a normal period from which conclusions could safely be drawn for rising prices in general.

In conclusion, as regards the comparison with the later period of falling prices, it ought to be stated that so much depends upon the trustworthiness of the wage statistics selected, and upon the accuracy with which the index numbers for prices reflect the condition of the laborer as regards his customary expenditures, that considerable allowance must be made in all cases from the results of the calculations; so that in a case where the two periods show nearly equal gains in real wages, no certain conclusion can be reached. With these reservations, the evidence seems favorable to rising prices, as being the more advantageous to the wage-earner. This applies, as was stated at the start, only to rising prices when resulting from an increased supply of the precious metals.

XL. THE CASE OF PAPER MONEY.

When rising prices take place under a regime of uncovered paper money, the position of the wage-earner is likely to be less favorable. Paper money has no value of its own, and the value it acquires from being issued by governments is subject to change under disturbing national conditions.[1] Now the fear that the paper *may depreciate*, will cause holders of money to desire to exchange it for property, and will cause holders of property to refuse to sell except at such higher prices as will appear to make them safe against the expected depreciа-

[1] The precious metals, on the other hand, have a value of their own, which changes only with the world demand and supply. Hence the use of either or both as a standard of value gives stability to the standard, and prices and wages readily adjust themselves to it.

tion. Hence in the case of civil war or other extreme disturbance we should expect prices to rise at once, without that indirect process (noted on pages 462-464) by which prices follow the rise of wages.

It is in this way, doubtless, that we are to account for the course of wages in the United States in the paper money period 1860–73. Wages rose less rapidly than prices during the war period. When the danger of further depreciation of the paper currency had become comparatively slight (*i. e.*, after 1866), wages in paper currency rose very rapidly, but this was after prices in paper had ceased rising.

As showing that paper money under more favorable conditions is not injurious to wage-earners, it should be noted that the period 1800–1810, which in England was one of depreciating paper money, shows a greater rise of wages than of prices, according to the comparison already made between Porter's table of wages and Jevon's for prices. In this case there was no internal disturbance, such as would give rise to the fear that the paper might become worthless.

XLI. PRICE CHANGES AND UNEMPLOYMENT.

Not less important than the rate of wages is the degree of constancy of employment enjoyed by wage-earners. Statements of average daily or weekly wages show with measurable accuracy the position of the majority of wage-earners, but they throw no light upon the situation of the minority who are dependent upon irregular employment. The preceding pages, which

have dealt only with the statistics of the class enjoying comparatively steady employment, do not, therefore, reflect accurately the position of the labor class as a whole. Unfortunately the data for a complete study are very meager.

The lack is in part made good by common observation and by the records of trade. These are the basis for the view that rising prices are favorable to industrial activity, and consequently to greater regularity of employment. The chief factors at work are (1) new supplies of the money metals falling into new and venturesome hands; (2) the experience of business undertakers in selling their goods at higher prices than were expected, and (3) the experience of borrowers in paying their loans more easily than had been anticipated—all of which would encourage the undertaking of new enterprises and the expansion of old ones.

Under falling prices the chief factors at work are the reverse of the two last named. That these must and do have a depressing effect upon industry is generally conceded, even by those who do not go to the same length as Mr. Balfour, in attributing to falling prices "the most deadening and benumbing influence which can touch the springs of enterprise in a nation."[1]

A statistical study of price changes and constancy of employment has been made by Dr. Chas. B. Spahr from the employers' return in the Senate Committee's report.[2]

[1] Quoted by Walker, *Economic Studies*, I: 44.

[2] The writer is greatly indebted to Dr. Spahr for the privilege of quoting from an article in manuscript the data given in the following three pages.

The study deals with the lesser price movements between 1860 and 1891, giving the number of employees and aggregate wages at the beginning and end of each price movement, for the eighty establishments covered by the committee's report.

XLII. We have already seen that the first period of rising gold prices, 1860–73, was very favorable to wage-earners so far as the rate of wages is concerned. The gain in wages came in the latter part of the period when prices in gold were comparatively steady. It was a normal recovery from the depressing effects of the Civil War, during which labor had suffered greatly from the disturbed industrial conditions, particularly, as Dr. Spahr points out, from the destruction of capital and the excessive burden of indirect taxation. Taking the period as a whole, there was a normal gain in the number of employees and a great gain (67 per cent.) in aggregate wages. The rise in prices, as will be recalled, was 18 per cent.:

	No. of Employees.	Average daily wage.	Aggegate wages.
January, 1860	5,651	$1.18	$6,668
January, 1873	6,153	1.77	11,171

The next comparison is between the data for 1873, as marking the culmination of the upward movement of prices, and the data for 1879, at the end of six years of downward movement. Prices, according to the Senate report, during this time had fallen 17 per cent., and the rate of wages 13 per cent., showing apparently a slight gain in real wages. The figures below, however, show that instead of a normal increase in the number of employed, there was a falling off of 17 per cent., so that

the decrease in aggregate wages paid by the establishments under consideration was very marked:

	No. of Employees.	Average daily wage.	Aggregate daily wages in gold.
January, 1873--	6,153	$1.77	$11,171
January, 1879--	5,097	1.55	7,913

That is to say, while prices had fallen according to the Senate report 17 per cent., the aggregate wages paid in the eighty establishments had decreased by 29 per cent.[1] This doubtless reflects more accurately than does the rate of wages the influence of that period of depression upon the well being of the labor class.

Following 1879 there was a slight recovery in American prices, continuing to 1882–3, a result due in the main to crop conditions in Europe and the operation of the Bland silver act. This rise amounted to 10 per cent., and had there been no increase in wages, workmen in regular employment would have suffered by the decreased purchasing power of their wages. What really took place is brought out strikingly in the following figures:

	No. of Employees.	Average daily wage.	Aggregate daily wages.
January, 1879--	5,097	$1.55	$7,913
January, 1883--	7,109	1.76	12,494

The change that took place in the rate of wages was so near that which took place in prices as to furnish no suggestion of the obvious change in the situation of the labor class as a whole. While average daily wages had

[1] Dr. Spahr assumes January prices to be half way between the prices of the preceding and following years.

risen 13 per cent., a little more than the rise of prices, the aggregate daily wages paid in these establishments had risen 58 per cent., the number of employees having increased 40 per cent.

Dr. Spahr calls attention to the fact that during a period of hard times it is the less efficient men that are first laid off. The skilled mechanics, foremen, and such of the other employees as are most difficult to replace are kept as long as possible. This elimination of workmen receiving the lowest wages tends to keep up the average daily wage during dull times; while the addition of low-priced labor during brisk times tends to give a slower rise in average wages than would otherwise occur.

The increase in the number of employees between 1879 and 1883 was 40 per cent., and since the new men were in general the low-priced men, it would not be surprising if there had been no rise in the average wage. The rise of 13 per cent. in the average wage means that the increase in wages of the best men, those that had not been laid off, was considerably greater. It is only in the table of aggregate wages that the importance of the gain to the working class is brought out.

Passing on to the subsequent years we find another rapid fall in wages from 1883 to 1886, while in the succeeding years, till 1891, they show a slight rise. The data for these wage movements may be condensed into a single table:

	No of employees.	Average daily wages.	Aggregate daily wages.
January, 1883	7,109	$1.76	$12,494
" 1886	6,338	1.68	10,633
" 1891	7,765	1.69	13,126

Here we have results similar to those already noted, a comparatively slight change in the average wage, but very marked changes in the number of employees and in aggregate wages, indicating the severity of the years of falling prices for the working class as a whole.

It should also be noted that these data cover the records of successful establishments, those that had maintained themselves for thirty or more years. Bearing in mind that the years of slack employment (indicated in the figures quoted) correspond with the recognized periods of dull times, with relatively numerous business failures, it is very probable that these figures for successful establishments minimize rather than exaggerate the total effect of falling prices upon the economic well being of the labor class as a whole.

CHAPTER VI.

XLIII. PROFITS.

It is the generally accepted view that the undertakers of business enterprises are benefited by rising prices and injured by falling prices, when these changes result from monetary causes. This view, as applied to the case of rising prices, is well expressed by President Walker:

"The influence of gradual metallic inflation upon profits is very direct and simple. The manufacturer, let us say, makes his bargains for materials and labor, for the production of certain quantity of goods. The prices which he agrees to pay are conditioned on the amount of the circulating medium. Three months later, when the goods are put on the market, prices are higher by reason of an increased supply of money. Of this rise the manufacturer gets the advantage."[1]

The objection which naturally arises to this view is that while the money in the hands of the producer at the end of the season is greater in amount, its purchasing power is no greater than if prices had not risen, and consequently there has been no real gain. President Walker's reply to this is as follows:

" . . . . . the wages of labor seldom or never rise so fast as the prices of commodities, and the prices of raw materials seldom or never rise as a result of an increase

[1] Money, Trade and Industry (1889), 91.

in the money supply, except after and through the rise in prices of the goods into whose production they enter."[1]

As we have already seen, the statement that prices rise faster than wages is not borne out by the statistics for the periods of rising prices, in so far as these have been available. Whether raw materials rise more slowly than finished goods is also a question of fact. Unfortunately the available data are so largely confined to raw materials that it is impracticable to study the question statistically. Some light may be thrown on the subject by the following considerations. If, in a period of metallic inflation, wages rise in advance of prices, which would seem to be the rule, it might at first appear that this would cause an increased demand for finished goods in advance of the increased demand for raw materials. But, as has been said, the new money supplies are probably used most largely in new industrial enterprises, and in so far as this is true it must tend to raise the prices of raw materials first. As a rule, probably both wages and raw materials rise in advance of finished goods, and if this were the determin-

[1] Money, Trade and Industry, 92. It is difficult to see how these two propositions can be reconciled. If wages did not rise as fast as prices, this would cause a diminution of purchasing power in the hands of the masses, and hence we should not expect any such increased demand for finished goods as would cause them to rise in price faster than raw materials.

It may well be that the undertaker would gain through the general increase in business and the consequent increase in consumption. He may gain by being able to sell *more* goods, the margin of profits being not higher than at other times. See page 67.

ing factor the undertaker would suffer by the rise of prices.

XLIV. The profits of the undertaker class during rising prices and their losses during falling prices seem to be due mainly to an entirely different cause. That cause lies in the fact that undertakers are, in the majority of cases, borrowers of capital, and as borrowers of capital they gain in rising prices what the money lender loses in the lowering of the rate of real interest. On the other hand, during falling prices they lose what the money lender gains in the higher rate of real interest.

Let us recur again to our example of a loan of $1,000 at 5 per cent. interest. We saw that a rise of 10 per cent. in prices during the loan period would result in an actual loss to the lender (measured by the purchasing power of principal and interest), which, as stated in the form of negative interest, was —4.5 per cent. The borrower, on the other hand, paid back in principal and interest $1,050 whose purchasing power was equal to that of only $954.54 at the time the loan was made. Thus, while paying a nominal interest of 5 per cent., he paid no real interest, but received a bonus of 4.8 per cent. for taking charge of the money. Under falling prices, however, he paid in real interest 15.5 per cent.

Taking the results of our study of interest rates as summarized on pages 452-454, we should have for the recent periods of price changes a gain of 1.2 per cent. annually for the borrowing undertaker before 1873 and an equal loss after that date.

XLV. Indirectly there is usually a gain also to the

whole undertaker class during rising prices, owing to the stimulus to business of all kinds, and the consequent increase in the consumption which it is probably safe to assume always takes place. Higher interest rates, higher money wages, steadier employment, and higher nominal profits, all give a hopefulness which tends to encourage increased consumption; and thus the undertaker by a more frequent turn-over of his stock may enjoy a higher degree of prosperity though the margin of profit be no greater than at other times.

Let us suppose that the undertaker's turn-over of goods for the year is increased to the extent of 50 per cent. by rising prices—which is probably not an exaggerated estimate of the difference in trade between "brisk" times and ordinary times. Suppose also that he may reasonably expect a return of 10 per cent. annually in profits on the capital invested, estimated on the basis of ordinary times. He thus makes an additional 5 per cent.—without a corresponding loss to any other class. As regards this particular aspect of the case, the whole industrial class gains by increased industry; the laboring class by steadier employment, and, in some cases at least, a higher rate of real wages, thus increasing their total aggregate wages and enabling them to consume more largely; the undertaker by reason of the increased consumption, which enables him to turn over his stock more frequently.

In so far as the increased industry is a factor, the money lender and property owner will be benefited by being partly reimbursed (through higher rates of interest

and higher rent charges) for the losses they would otherwise suffer from rising prices. If we conceive of a case where interest and rent charges rise sufficiently to assure the receivers the same real income, and, in the case of interest, to make good the change in purchasing power of the principal, the wage-earning and undertaker classes may still be benefited; increased industry itself resulting in increased incomes for both classes. In a community where the individual members are working only half their time, any inducement, though illusory in itself, which sets them at work their full time may benefit all without necessarily injuring any. This, I believe, to be the most gratifying effect of rising prices.